Table of Contents

Information Sources 2

Server Product Positioning 4

Server Selection Guidance 6

Server Selection Guidance 7

IBM Netfinity 1000 (IDE) Configurator 10

IBM Netfinity 3000 Configurator 14

IBM Netfinity 3500 M10 Configurator 20

IBM Netfinity 4000R Configurator 26

IBM Netfinity 4500R Configurator 30

IBM Netfinity 5000 Configurator 36

IBM Netfinity 5100 Configurator 44

IBM Netfinity 5500 Configurator 52

IBM Netfinity 5500 M10 Configurator 60

IBM Netfinity 5500 M20 Configurator 68

IBM Netfinity 5600 Configurator 76

IBM Netfinity 7000 M10 Configurator 84

IBM Netfinity 7100 Configurator 92

IBM Netfinity 7600 Configurator 100

IBM Netfinity 8500R Configurator 108

IBM External Storage Expansion Unit Overview 117

IBM Netfinity EXP15 (3520-2RU) Configurator 118

IBM Netfinity EXP300 (35311RU) Configurator 123

IBM Netfinity EXP500 (35601RU) Configurator 127

IBM Netfinity Fibre Array Solutions 129

IBM Netfinity NetBAY3/NetBAY3E Stackable Enclosures 139

IBM Netfinity Rack Cabinet and Options 141

Appendix A: Tape Drive Attributes 146

Appendix B: Tape Library Attributes 147

Appendix C: UPS Runtime Estimate (minutes) 148

Appendix D: Cables - Storage Units–Controllers 150

Appendix E: IBM Serial I/O 152

IBM ServicePac for Warranty and Maintenance Options for IBM Netfinity Servers and Server Storage Peripherals 153

IBM ServicePac for SmoothStart Services for IBM Netfinity Servers 155

Important Notes 156

Information Sources

Canada		
Audience	**Where to go**	**How to get**
Server Paper Configurator Guide		
Customers	www.ibm.com/pc/ca/netfinity/tech_library.html	Select "Technical Info."
Business Partners	www.ibm.com/pc/partner/ca	Select "Sales Tools" and then "Marketing Essentials". User ID and Password required.
IBM Employees	Marketing Essentials	By Brand category --> IBM Netfinity or By Brand category --> PC Configurator
Feedback	www.ibm.com/pc/partner/ca/feedback.html	
Netfinity Rack Configurator		
Customers	www.ibm.com/pc/ca/netfinity/tech_library.html	Select "Technical Info."
Business Partners	www.ibm.com/pc/partner/ca	Select "Sales Tools" and then "Marketing Essentials". User ID and Password required.
IBM Employees	Marketing Essentials	By Brand category --> IBM Netfinity or By Brand category --> PC Configurator
Feedback	E-mail ibm_netfinity_rack_configurator@vnet.ibm.com	
Latest Product & Technical Information		
Customers	www.ibm.com/pc/ca/netfinity or call 1-800-426-2255	
Business Partners	www.ibm.com/pc/partner/ca or call the PSMT	User ID and Password required
IBM Employees	Marketing Essentials	By Brand category --> IBM Netfinity or By Brand category --> PC Configurator
Latin America		
Server Paper Configurator Guide		
Customers	www.ibm.com/pc/us/netfinity/tech_library.html	Select "Configuration Tools"
Business Partners	Marketing Essentials in ePartner	See footnote 2
IBM Employees	Marketing Essentials in Lotus Notes PartnerInfo	By Brand category --> IBM Netfinity or By Brand category --> PC Configurator
Feedback	E-mail laconfig@us.ibm.com	
Netfinity Rack Configurator		
Customers	www.ibm.com/pc/us/netfinity/tech_library.html	Select "Configuration Tools"
Business Partners	Marketing Essentials in ePartner	See footnote 2
IBM Employees	Marketing Essentials in PartnerInfo	By Brand category --> IBM Netfinity or By Brand category --> PC Configurator
Feedback	E-mail ibm_netfinity_rack_configurator@vnet.ibm.com	
OrderBUILDER[1] (updated weekly)		
Business Partners	Marketing Essentials in ePartner	See footnote 2
IBM Employees	Marketing Essentials in PartnerInfo	By Brand category --> IBM Netfinity or By Brand category --> PC Configurator
Feedback	E-mail laconfig@us.ibm.com	
Latest Product & Technical Information		
Customers	www.la.pc.ibm.com	
Business Partners	www.pc.ibm.com/la/ or www.pc.ibm.com/br/	See footnote 2
IBM Employees	Marketing Essentials in PartnerInfo	By Brand category --> IBM Netfinity or By Brand category --> PC Configurator

1. OrderBUILDER has features that are unique to a geographical region and should therefore be downloaded from a source intended for use in that region.
2. ID and Password required. Spanish==>http://www.pc.ibm.com/la. Select Partner World/VAR 2000. Then select either PartnerWorld or VAR2000 and request an ID and Password. Brazil==> http://www.pc.com/br/. Select PatnerWorld and then Formulario de Cadastramento. If you have an ID/Password, Spanish==> http://www.pc.ibm.com/la/. Select PartnerWorld/VAR2000. Then select Marketing Essentials, then PC Configurator. Brazil==> http://www.pc.ibm.com/br/. Select PartnerWorld and then Marketing Essentials.

See Next Page for United States and Additional URLs

United States

Audience	Where to go	How to get
Server Paper Configurator Guide		
Customers	www.ibm.com/pc/us/netfinity/tech_library.html	Select "Configuration Tools"
Business Partners	www.pc.ibm.com/partner/us/	Select Sales Tools, then Marketing Essentials, then IBM PC Server--> Paper Configurator. User ID and Password required.
IBM Employees	Marketing Essentials	By Brand category --> IBM Netfinity or By Brand category --> PC Configurator
Feedback	www.ibm.com/pc/partner/us/feedback.html	
Netfinity Rack Configurator		
Customers	www.ibm.com/pc/us/netfinity/tech_library.html	Select "Configuration Tools"
Business Partners	www.pc.ibm.com/partner/us/	Select Sales Tools, then Marketing Essentials, then IBM PC Server--> Rack Configurator. User ID and Password required.
IBM Employees	Marketing Essentials	By Brand category --> IBM Netfinity or By Brand category --> PC Configurator
Feedback	E-mail ibm_netfinity_rack_configurator@vnet.ibm.com	
OrderBUILDER[1] (updated bi-weekly)		
Customers	www.ibm.com/pc/us/orderbuilder	
Business Partners	www.ibm.com/pc/partner/us	Select Sales Tools, then OrderBUILDER. User ID and Password required.
IBM Employees	Marketing Essentials	By Brand category --> IBM Netfinity or By Brand category --> PC Configurator
	w3.pc.ibm.com/catalog/install.html	Intranet: Select Sales Automation then OrderBUILDER
Feedback	E-mail pcconfig@us.ibm.com	
Latest Product & Technical Information		
Customers	www.ibm.com/pc/us/netfinity or call 1-800-772-2227	
Business Partners	www.pc.ibm.com/partner/us/ or call 1-800-426-7763	Select Products & Services; User ID and Password required
IBM Employees	Marketing Essentials	By Brand category --> IBM Netfinity or By Brand category --> PC Configurator

Additional URLs

Audience	Where to go	How to get
Technical spec sheets (PSREF)	www.ibm.com/pc/us/netfinity/tech_library.html	Select "Technical spec sheets(PSREF)"
Clustering (US, LA)	www.ibm.com/pc/us/netfinity/clustering.html	Select desired category or Server
Clustering (CAN)	www.ibm.com/pc/ca/netfinity/clustering.htm	Select desired category or Server
Benchmark Results	www.pc.ibm.com/ww/netfinity/benchmarks/	Select desired category or Server
Options/NOS/Server compatibility	www.ibm.com/pc/us/compat	From pulldown select desired category
NOS - Hot-Plug/Failover Support	www.ibm.com/pc/us/compat	From pulldown select "Netfinity Hotplug PCI and Failover Info".
IBM Storage Products	www.ibm.com/storage	
Adobe® Acrobat® Reader V 3.0 or 4.0	www.adobe.com/prodindex/acrobat/readstep.html	Follow instructions.
Adv. Sys. Mgmt. Adapter Firmware	www.ibm.com/pc/us/netfinity	Select "Support", "Family", "Model", "Downloadable files" and "Advanced Systems Management".
Flash BIOS Updates	www.ibm.com/pc/support	Enter machine "Type-Model" in Quick Path. Select "Downloadable files" then "BIOS".
ServeRAID Updates	www.ibm.com/pc/support	Select "Server" in Brand pulldown, "ServeRAID" in Family pulldown and then "Downloadable files".

1. OrderBUILDER and ConfigXpert have features that are unique to a geographical region and should therefore be downloaded from a source intended for use in that region.

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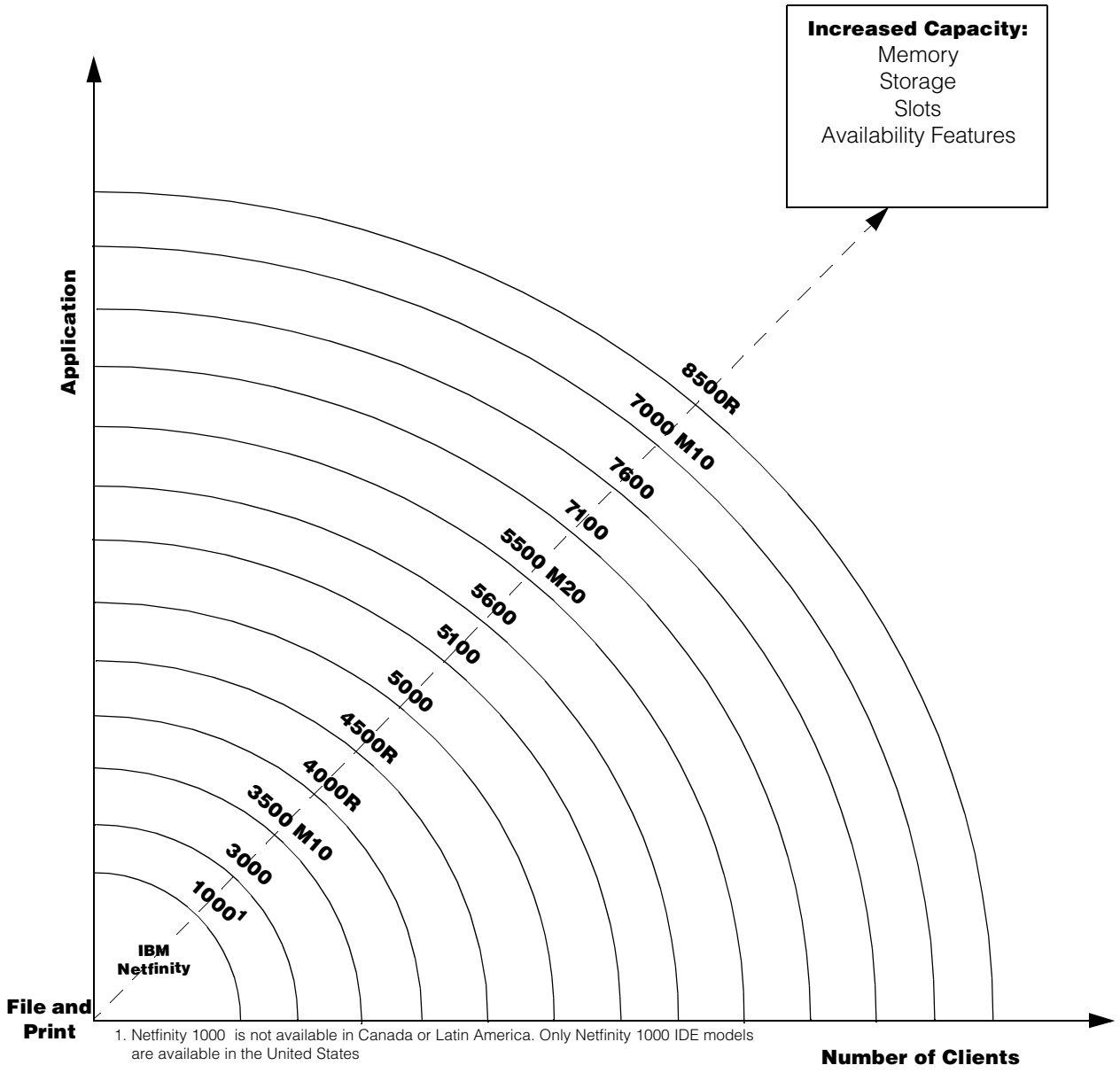
The following sample configurations are for illustration only and may not be suitable for any specific customer installation. Contact your IBM Business Partner or IBM Marketing Representative for assistance with your specific configuration requirements.

Server Product Positioning



1. Netfinity 1000 is not available in Canada or Latin America. Only Netfinity 1000 IDE models are available in the United States

When in a competitive situation, this table suggests the appropriate IBM Netfinity server to bid against other vendors' equipment. However, as an IBM business partner, you may determine that customer specific requirements may make an alternative IBM solution a better choice

	Value	Price Performance	Mission Critical	Rack Optimized
8-way			Netfinity: 8500R Compaq: ProLiant 8000 Dell: No Offering HP: No Offering	Netfinity: 8500R Compaq:ProLiant 8500 Dell: PowerEdge 8450 HP: NetServer LXr 8500
4-way		Netfinity: 7100 Compaq: ProLiant 5500 Dell: PowerEdge 6300 HP: NetServer LH4	Netfinity: 7600 Compaq: No Offering Dell: No Offering HP: NetServer LXr 8000	Netfinity: 7600 Rack Compaq: ProLiant 6400 Dell: PowerEdge 6350 HP: NetServer LH4r
2-way	Netfinity:3500 M10 Compaq: ProLiant ML350 Dell: PowerEdge 1300 HP: NetServer E60	Netfinity:5100 Compaq: ProLiant ML370 Dell: PowerEdge 2400 HP: NetServer LC2000	Netfinity:5600 Compaq: ProLiant ML530 Dell: PowerEdge 4400 HP: NetServer LH 3000	Netfinity: 4000R, 4500R Compaq: ProLiant DL380, Photon Dell: PowerEdge 2450 HP: NetServer LPr
Uni	Netfinity: 1000[1] Compaq: ProSignia 720 Dell: No Offering HP: No Offering	Netfinity: 3000 Compaq: ProLiant 400 Dell: No Offering HP: No Offering		

1. Netfinity 1000 is not available in Canada or Latin America. Only Netfinity 1000 IDE models are available in the United States

Server Selection Guidance

This graph represents general guidelines for selecting the appropriate server based on the number of users that can be supported in a particular application environment. This chart is for general guidance since each customer environment is unique and is unlikely to be precisely represented by any of the specific applications in the chart, but by using the chart, a reasonable approximation can be derived. External Storage Units are utilized when internal capacities are exceeded. Utilize the chart by following the steps outlined on the following page.
These are not published benchmark results. Access http://www.ibm.com/pc/us/techlink/srvperf.html to obtain benchmark data.

Application/ Expectation of Maximum # of Users		Netfinity 1000(IDE)[3] Uni-Pentium III 600 MHz/ 512 KB	Netfinity 3000 Uni-Pentium III 700 MHz/256 KB	Netfinity 3500 M10 Dual Pentium III 600 MHz/ 512 KB	Netfinity 4500R Dual Pentium III 733 MHz/ 256 KB
DB Transaction Processing Select, Update and Delete; Does not include image or Decision Support	**# of Users**	**50**	**1125**	**1675**	**2340**
	# of processors	1	1	2	2
	Memory (MB)	384	512	1 GB	2 GB
	# Hard Disk Drives	3	12 to 18	24 to 36	36 to 48
	# RAID Adapters	-	≥ 2 SCSI	≥3	≥3
	#Network Connections	1	1	1	1
File and Print Application is stored locally. (For server stored applications - cut number of users in half).	**# of Users**	**100**	**1000**	**2000**	**2100**
	# of Processors	1	1	2	2
	Memory (MB)	512	512	1 GB	1 to 2 GB
	# Hard Disk Drives	3	3 to 4	16 to 24	20 to 30
	# RAID Adapters	-	≥ 1 SCSI	2	2
	# 100Mbps Ethernet Connections	≥ 2	≥ 2	4	4
Lotus Notes 10% Power Users 40% Mail 50% Mail & DB	**# of Users**	**100**	**675**	**1400**	**1825**
	# of Processors	1	1	2	2
	Memory (MB)	384	384	1 GB	2-3 GB
	# Hard Disk Drives	3	3 to 4	18	20 to 30
	# RAID Adapters	-	≥ 1 SCSI	1	2
	# Network Connections	≥ 1	≥ 1	≥2	≥1
Microsoft Exchange Server 5.5 100% Med Usersl 30 MB Mailbox	**# of Users**	**525**	**700**	**1800**	**1950**
	# of Processors	1	1	2	2
	Memory (MB)	256	384	1 GB	2 GB
	# Hard Disk Drives	3	3 to 4	9	9
	# RAID Adapters	-	≥ 1 SCSI	1	1
	# Network Connections	≥ 1	≥ 1	≥1	≥1
SAP 3-Tier Distributed Ver 4.x Processing Sales and Distribution Application (Minimum of 16-20 Servers)	**# of Users**	-	-	-	
	# of Processors	-	-	-	
	Memory (MB)	-	-	-	
	# Hard Disk Drives	N/A	N/A	N/A	N/A
	# RAID Adapters	-	-	-	
	# Network Connections	-	-	-	
SAP Central Version 4.x Processing Sales and Distribution Application (One Server)	**# Users**	-	-	**104**	**126**
	# Processors	-	-	2	2
	Memory (MB)	-	-	1 GB	1 GB
	# Hard Disk Drives	N/A	N/A	12 to 24	12 to 24
	# RAID Adapters	-	-	≥1	≥1
	# Network Connections	-	-	1	1
High Availability Features	Hot-Swap HDD Bays	-	-	-	X
	Hot-Plug PCI Slots	-	-	-	-
	Hot-Swap Power	-	-	-	X
	Hot-Swap Fans	-	-	-	X
	RAID	-	Opt.	Opt.	Opt.
	Clustering Support	-	-	-	-
	Sys. Mgt. Processor	-	Opt.	-	X
Other Distinquishing Features	Max # Processors	1	1	2	2
	Max Memory (MB)	768	768	1 GB	4 GB
	Max Int. Storage (GB)	30.3**	72.8	72.8	218.4
	Max Int. Storage (GB) with Int. Tape drive	30.3	54.6	54.6	109.2
	Available PCI Slots	3	2	5	5
	19" Rack Models	-	-	-	X
	NetBAY3x Support	-	-	-	-

Server Selection Guidance

Application/ Expectation of Maximum # of Users		Netfinity 5000 Dual Pentium III 700 MHz/256 KB	Netfinity 5100 Dual Pentium III 733 MHz/256 KB	Netfinity 5600 Dual Pentium III 800 MHz/256 KB	Netfinity 5500 M20 Quad Pentium III Xeon 550 MHz/1 MB	Netfinity 7000 M10 Quad Pentium III Xeon 550 MHz/2 MB	Netfinity 7100 Quad Pentium III Xeon 550 MHz/ 1024 KB	Netfinity 7600 Quad Pentium III Xeon 550 MHz/ 2048 KB	Netfinity 8500R Eight-Way Pentium III Xeon 550 MHz/ 2 MB
DB Transaction Processing Select, Update and Delete; Does not include image or Decision Support	**# of Users**	**1775**	**2340**	**3265**	**5400**	**5650**	**5400**	**5650**	**9000**
	# of processors	2	2	2	4	4	4	4	8
	Memory (MB)	1 GB	2 GB	4 GB	4 GB	4 GB	4 GB	4 GB	4 GB
	# Hard Disk Drives	24 to 36	36 to 48	80 to 140	80 to 140	80 to 140	80 to 140	80 to 140	180 to 250
	# RAID Adapters	≥3	≥3	≥4	≥4	≥5	≥ 5	≥ 5	≥6 or Fibre
	#Network Connections	1	1	2 to 3	2 to 3	2 to 3	2 to 3	2 to 3	2 to 3
File and Print Application is stored locally. (For server stored applications - cut number of users in half).	**# of Users**	**2000**	**2100**	**2100**	**2500**	**5000**	**5000**	**5000**	**6000**
	# of Processors	2	2	2	2	2	2	2	3-4
	Memory (MB)	1 GB	1 to 2 GB	1 to 2 GB	1 to 2 GB	3 to 4 GB	2 to 4 GB	1 to 2 GB	4 GB
	# Hard Disk Drives	16 to 24	20 to 30	20 to 30	20 to 30	50 to 90	50 to 90	20 to 30	75 to 150
	# RAID Adapters	2	2	2	2	≥4	≥ 4	≥ 4	≥4 or Fibre
	# 100Mbps Ethernet Connections	4	4	4	4	8	8	8	10
Lotus Notes 10% Power Users 40% Mail 50% Mail & DB	**# of Users**	**1500**	**1825**	**1910**	**3500**	**3650**	**3500**	**3650**	**5800**
	# of Processors	2	2	2	4	4	4	4	8
	Memory (MB)	1 GB	2-3 GB	3 GB	3 GB	3 GB	3 GB	3 GB	4 GB
	# Hard Disk Drives	18	20 to 30	20 to 30	20 to 30	20 to 30	20 to 30	20 to 30	30 to 40
	# RAID Adapters	1	2	2	2	2	2	2	≥3
	# Network Connections	≥2	≥1	≥1	≥1	≥1	≥1	≥1	≥2
Microsoft Exchange Server 5.5 100% Med Users 30 MB Mailbox	**# of Users**	**2100**	**1850**	**1970**	**4300**	**4500**	**6600**	**7000**	**7000**
	# of Processors	2	2	2	4	4	4	4	8
	Memory (MB)	1 GB	2 GB	1.5 GB	2 GB	3 GB	3 GB	3 GB	4 GB
	# Hard Disk Drives	9	12	12	24	30	30	30	36
	# RAID Adapters	1	1	2	2	≥2	≥2	≥2	≥3
	# Network Connections	≥1	≥1	≥1	≥2	≥2	≥2	≥2	≥2
SAP 3-Tier Distributed Ver 4.x Processing Sales and Distribution Application (Minimum of 16-20 Servers)	**# of Users**	-	**2075**	**2260**	**3150**	**3350**	**3150**	**3350**	**5100**
	# of Processors	-	2	2	4	4	4	4	8
	Memory (MB)	-	1-2 GB	1-2 GB	2-4 GB	≥4 GB	≥4 GB	≥4 GB	≥4 GB
	# Hard Disk Drives	N/A	24 to 36	24 to 36	48 to 60	48 to 60	48 to 60	48 to 60	48 to 60
	# RAID Adapters	-	≥2	≥2	≥3	≥3	≥3	≥3	≥3
	# Network Connections	-	1	1	1	1	1	1	1
SAP Central Version 4.x Processing Sales and Distribution Application (One Server)	**# Users**	**120**	**126**	**146**	**220**	**245**	**245**	**245**	**375**
	# Processors	2	2	2	4	4	4	4	8
	Memory (MB)	1 GB	1-2 GB	1-2 GB	≥2 GB	≥2 GB	≥2 GB	≥2 GB	≥4 GB
	# Hard Disk Drives	12 to 24	12 to 24	12 to 24	24 to 36	24 to 36	24 to 36	24 to 36	24 to 36
	# RAID Adapters	≥1	≥1	≥1	≥2	≥2	≥2	≥2	≥2
	# Network Connections	1	1	1	1	1	1	1	1
High Availability Features	Hot-Swap HDD Bays	X	X	X	X	X	X	X	X
	Hot-Plug PCI Slots	-	-	X	X	X	Opt.	X	X
	Hot-Swap Power	X	Opt	X	X	X	X	X	X
	Hot-Swap Fans	-	-	X	X	X	X	X	X
	RAID	Opt.	Opt.	Opt.	X	Opt.	Opt.	X	Opt.
	Clustering Support	X	-	X	X	X	X	X	X
	Sys. Mgt. Processor	X	X	X	X	X	X	X	X
Other Distinguishing Features	Max # Processors	2	2	2	4	4	4	4	8
	Max Memory (GB)	2 GB	4 GB	4 GB	4 GB	8 GB	16 GB	16 GB	16 GB
	Max Int. Storage (GB)	91	218.4	218.4	109, 473[1]	72.8	364	364	72.8
	Max Int. Storage (GB) with Int. Tape drive	91	218.4	218.4	109, 473[1]	N/A	364	364	N/A
	Available PCI Slots	5	5	5	5	12	6	5	12
	19" Rack Models	X	X	X	X	X	X	X	X
	NetBAY3x Support	-	-	-	X	X[2]	X	X	X[2]

1. With a single Netfinity EXP200 storage unit installed in the standard NetBAY3 included with tower models.
2. With a Rack-to-Tower Conversion Kit installed.

Procedure for Server Selection Guidance Chart

File and Print numbers are Novell Netware-based with all others based on Microsoft Windows NT. Other Networking Operating System (NOS) results could vary.
Extensive SAP sizings are available from IBM/SAP Competency Centers. Contact your IBM Marketing Representative for additional information**.**
Step 1: Determine which application (row) most closely represents the customer's environment.
Step 2: Move from left to right along the row (chosen in Step 1) noting which columns contain numbers that are equal to or greater than the maximum customer's planned number of users.
Step 3: Move up the columns (chosen in Step 2) to the top row to determine which IBM Netfinity or PC Servers should be considered as possible solutions.
Step 4: Evaluate other features such as storage, memory capacity, high availability components, number of available expansion slots, etc., which are unique to each server, in order to determine which is the most appropriate to recommend.
For your reference, configuration information corresponding to the number of users is also provided.

IBM Netfinity 1000 (IDE) Configurator

Part Number	Processor Speed (MHz)	Number of Processors (Std/Max)	L2 ECC Cache. (KB)	Memory (Std/Max) (R=RDIMM)	Form Factor	Power Supply Quantity (Std/Max)	Hot-Swap (Power, Slots, HDD, Fans)	Redundancy (Optional, Standard)	Adv. System Management Processor	Onboard Ethernet	Storage Controller	Removable Media Bays (Total/Avail)	Internal Hard Disk Drive (Std/Max)	CD-ROM (IDE)	Bays: (Total/Avail)	Slots: (Total/Avail)
8477-42Y[3]	600[1]	1/1	512	64/768 MB	Tower	1/1	-	-	-	10/100	IDE	4/2	10.1/30.3 GB	40X-17X[2]	6/4	6/6

1. Intel Pentium III processor.
2. Variable read rate. Actual playback speed will vary and is often less than the maximum possible.
3. Netfinity 1000 (IDE models) are not available in Canada or Latin America.

Netfinity 1000 (IDE) Processor Upgrades

There are no processor upgrades available at this time.

Netfinity 1000 (IDE) Memory

DIMM Socket
DIMM Socket
DIMM Socket

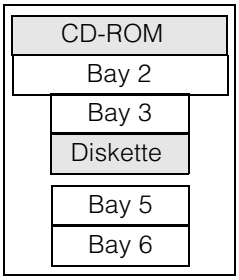
Part Number	Memory Description
01K1133	32 MB 100 MHz ECC SDRAM DIMM
01K1130	64 MB 100 MHz ECC SDRAM DIMM
01K1131	128 MB 100 MHz ECC SDRAM DIMM
01K1132	256 MB 100 MHz ECC SDRAM Registered DIMM[1]

1. P/N 01K1132 is a registered DIMM and is not compatible with 01K1130, 01K1131, or 01K1133. Installation of this RDIMM requires replacement of the standard DIMM.

Total Memory	All Models
32 MB	N/A
64 MB	64 MB DIMM Standard
128 MB	1 x 01K1130
192 MB	1 x 01K1131
256 MB	1 x 01K1131, 1 x 01K1130
320 MB	2 x 01K1131
384 MB	3 x 01K1131[1]
512 MB	2 x 01K1132[1]
768 MB (max)	3 x 01K1132[1]

This table does not represent all possible memory configurations.
1. Replace standard DIMM.

Netfinity 1000 (IDE) Hard Disk Drive (HDD) Storage



Total Internal Storage[1]	All Models
10.1 GB	Standard
20.2 GB	1 x 33L4958
30.3 GB	2 x 33L4958

This table does not represent all possible hard drive configurations.
1. Total Internal Storage listed is within ± 0.2 GB unless otherwise noted.

Bay	Form Factor	Height	Front Access	Usage
1	133 mm (5.25")	HH	yes	IDE CD-ROM
2	133 mm (5.25")[1]	HH	yes	open
3	89 mm (3.5")	SL	yes	open
6	89 mm (3.5")	SL[2]	no	open

1. A 3.5" conversion kit is standard in Bay 2 for installation of 3.5" hard disk drives.
2. Two slim-line bays can be combined to support a single half-high (HH) device.

Part Number	Description	RPM	Height	Bays Supported	Max. Qty.
Internal IDE Hard Disk Drives (HDD)					
33L4958	10.1 GB 7200rpm EIDE HDD[1]	7200	SL	2, 3, 5, 6	3

1. This HDD is only supported in the Netfinity 1000(IDE) (model 8477-42Y).

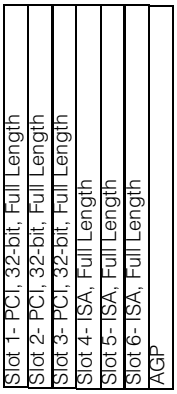
Internal SCSI Cabling

Netfinity 1000 (IDE) systems have an onboard IDE Storage Controller that provides support for up to four internal IDE devices. All models of the Netfinity 1000 (IDE) include an IDE CD-ROM drive and one 10.1 GB 7200rpm EIDE Hard Disk Drive. This allows for the addition of up to two additional IDE devices.

Netfinity 1000 (IDE) I/O Options

Part Number	Description	Adapter Length	PCI Support	Slots Supported
Storage Controllers[1]				
02K3454	PCI Fast/Wide Ultra SCSI Adapter[2]	Half	32-bit	1, 2, 3
Networking[3]				
	Ethernet			
34L1501	Netfinity 10/100 Ethernet PCI Adapter 2	Half	32-bit	1, 2, 3
	Token Ring			
34L0601	Token-Ring 16/4 PCI Adapter 2	Half	32-bit	1, 2, 3
34L0701	Token-Ring 16/4 PCI Adapter 2 with Wake on LAN[4]	Half	32-bit	-
Communications				
33L4618	PCI V.90 56 Data/Fax Modem[5]	Half	32-bit	1, 2, 3
37L14xx	Serial I/O SST 8, 16 and 128 Port Adapters[6]	Half	32-bit	1, 2, 3
Systems Management[7]				

1. Netfinity 1000 (IDE) ships with integrated IDE controllers and cables for support of up to 3 hard disk drives. Optional SCSI support is limited to tape drives only. No SCSI hard disk drives are supported.
2. Supports attachment of internal tape drives only. Includes 16-bit SCSI cable.
3. Netfinity1000 (IDE) has an integrated 10/100 PCI Ethernet Controller.
4.The Wake on LAN function of this option is not supported by Netfinity Servers.
5. Due to homologation variances, modem availability may differ by country.
6. See Appendix E for details on Serial I/O options and configuration limitations.
7. Netfinity 1000 (IDE) provides the following integrated system management features - Vital Product Data (VPD) plus thermal, voltage, and fan sensors.


Slot 1- PCI, 32-bit, Full Length
Slot 2- PCI, 32-bit, Full Length
Slot 3- PCI, 32-bit, Full Length
Slot 4- ISA, Full Length
Slot 5- ISA, Full Length
Slot 6- ISA, Full Length
AGP

Netfinity 1000 (IDE) Power, Monitor & Accessories

Part Number	Description
	Power[1]
	Uninterruptible Power Supply (UPS)[2]
94G3134	APC Smart-UPS 700
94G3135	APC Smart-UPS 1000
	Monitors
65464AN	G54 Color Monitor 15" (348-mm, 13.7" Viewable Image Size), stealth black
65474AN	G74 Color Monitor 17" (403-mm, 15.9" Viewable Image Size), stealth black
6331B2N	E54 Color Monitor 15" (350-mm, 13.8" Viewable Image Size), stealth black
6332J1N	E74 Color Monitor 17" (403-mm, 15.9" Viewable Image Size), stealth black
654841N	G76 Color Monitor 17" (406-mm, 16" Viewable Image Size), stealth black
65494AN	G96 Color Monitor 19" (454-mm, 17.9" Viewable Image Size), stealth black
9513AG1	T55A Flat Panel Color Monitor (381-mm, 15.0" Viewable Image Size), stealth black
9519AG1	T85A Flat Panel Color Monitor (459-mm, 18.1" Viewable Image Size), stealth black

1. Netfinity 1000 IDE includes a 330 W voltage sensing power supply.
2. For runtimes and UPS attributes see Appendix C: UPS Runtime Estimate.

Netfinity 1000 (IDE) Tape Options

Part Number	Description	Bays Supported	SCSI Interface (bit)	Form Factor	Termination Incl.	68/50-Pin Convertor Incl.	Ext. Tape Enclosures
01K1319	10/20 GB NS Internal SCSI Tape Drive[1]	2, 3	8	89 mm (3.5") SL or 133 mm (5.25") HH	Y[2]	Y	n/a

1.Requires PCI Fast/Wide Ultra SCSI Adapter (P/N 02K3454) which includes a SCSI cable.
2. Tape drive is capable of self termination.

Sample Configurations

Note: The following sample configurations are for illustration only and may not be suitable for any specific customer installation. Contact your IBM Business Partner or IBM Marketing Representative for assistance with your specific configuration requirements.

Workgroup Intranet Server

Part Number	Description	Quantity
8477-42Y	Netfinity 1000 (IDE) Pentium III 600 MHz/512 KB L2, 64 MB ECC, Open, 40X, PCI/ISA	1
01K1130	64 MB 100 MHz ECC SDRAM DIMM [1]	1
33L4958	10.1 GB 7200rpm EIDE HDD	1
02K3454	PCI Fast/Wide Ultra SCSI Adapter	1
01K1319	10/20 GB NS Internal SCSI Tape Drive	1
36L9636	Netfinity Two-Drop Internal SCSI Cable	1
65464AN	G54 Color Monitor 15" (348-mm, 13.7" Viewable Image Size), stealth black	1
94G3135	APC Smart-UPS 1000	1

1. For a total of 128 MB of system memory.

An Intranet server is a server that handles all requests from the Intranet (internal "Internet"). Usually, this type of server has the same characteristics as a normal file server. The main difference is that an Internet server talks a different language (TCP/IP vs. NETBEUI or IPX/SPX) and often needs to do an extra security check (firewall). In the case of an Internet server, the server itself talks mostly to just one client, the Internet Service Provider (ISP), instead of many clients like a file server does.

With this in mind, the IBM Netfinity 1000 (IDE) was selected to provide an affordable price point for the growing Internet server market with Pentium III processing, 128 MB of system memory (expandable to 768 MB), integrated 10/100 Ethernet controller, high-performance storage, and power protection with an APC Smart-UPS. The configuration includes a tape backup unit for secure backup of critical data in the event of a system or storage failure.

File and Print Server

Part Number	Description	Quantity
8477-42Y	Netfinity 1000 (IDE) Pentium III 600 MHz/512 KB L2, 64 MB ECC, Open, 40X, PCI/ISA	1
01K1130	64 MB 100 MHz ECC SDRAM DIMM[1]	1
02K3454	PCI Fast/Wide Ultra SCSI Adapter	1
01K1319	10/20 GB NS Internal SCSI Tape Drive	1
36L9636	Netfinity Two-Drop Internal SCSI Cable	1
65464AN	G54 Color Monitor 15" (348-mm, 13.7" Viewable Image Size), stealth black	1
94G3135	APC Smart-UPS1000	1

1. For a total of 128 MB of system memory.

A small business or departmental server is usually required to perform all typical server functions while servicing up to 50 users in a normal workgroup computing environment, but doesn't require the high-end performance and fault tolerance properties of larger servers.

The sample configuration above consists of an IBM Netfinity 1000 (IDE) with 128 MB of memory and 9.1 GB of hard disk space. It has enough processor power and memory to run most current network operating systems comfortably and enough hard disk drive space to store a significant amount of data with additional internal storage expansion still available. Demanding network traffic is effectively handled by the standard 100 Mbps Ethernet connection. This configuration also includes a tape backup unit, monitor, and a UPS to keep the system protected from power surges and outages.

IBM Netfinity 3000 Configurator

Part Number	Withdrawal Date (mmddyy)[5]	Processor Speed (MHz)	Number of Processors (Std/Max)	L2 ECC Cache. (KB)	Memory (Std/Max) (R=RDIMM)	Form Factor	Power Supply Quantity (Std/Max)	Hot-Swap (Power, Slots, HDD, Fans)	Redundancy (Optional, Standard)	Adv. System Management Processor	Onboard Ethernet (Mbps)	SCSI Controller (Dual, Ultra, RAID)	Removable Media Bays (Total/Avail)	Internal Hard Disk Drive (Std/Max)	CD-ROM (IDE)	Bays: (Total/Avail)	Slots (Total/Avail)
8476-50U	042800	500[3]	1/1	512	64/768 MB	Tower	1/1	-	-	-	10/100	U	4/2	72.8 GB	32X-14X[1]	6/4	6/5
8476-51U	042800	500[3]	1/1	512	64/768 MB	Tower	1/1	-	-	-	10/100	U	4/2	9.1/72.8 GB[2]	32X-14X[1]	6/3	6/5
8476-60U	042800	550[3]	1/1	512	64/768 MB	Tower	1/1	-	-	-	10/100	U	4/2	72.8 GB	40X-17X[1]	6/4	6/5
8476-61U	042800	550[3]	1/1	512	64/768 MB	Tower	1/1	-	-	-	10/100	U	4/2	9.1/72.8 GB[2]	40X-17X[1]	6/3	6/5
8476-70U		600[3]	1/1	512	64/768 MB	Tower	1/1	-	-	-	10/100	U	4/2	72.8 GB	40X-17X[1]	6/4	6/5
8476-71U		600[3]	1/1	512	64/768 MB	Tower	1/1	-	-	-	10/100	U	4/2	9.1/72.8 GB[2]	40X-17X[1]	6/3	6/5
8476-80U		650[4]	1/1	256	64/768 MB	Tower	1/1	-	-	-	10/100	U2	4/2	0/72.8 GB	40X-17X[1]	6/4	6/5
8476-81U		650[4]	1/1	256	128/768 MB	Tower	1/1	-	-	-	10/100	U2	4/2	9.1/72.8 GB[2]	40X-17X[1]	6/3	6/5
8476-90U		700[4]	1/1	256	64/768 MB	Tower	1/1	-	-	-	10/100	U2	4/2	0/72.8 GB	40X-17X[1]	6/4	6/5
8476-91U		700[4]	1/1	256	128/768 MB	Tower	1/1	-	-	-	10/100	U2	4/2	9.1/72.8 GB[2]	40X-17X[1]	6/3	6/5

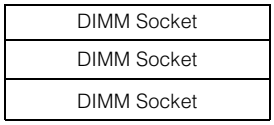
1. Variable read rate. Actual playback speed will vary and is often less than the maximum possible.
2. Standard Hard Disk Drives (HDD) are 7200 RPM. Maximum internal capacities assume replacement of standard hard disk drives with the largest supported IBM hard disk drives.
3. Intel Pentium III processor.
4. Intel Pentium III processor with advanced transfer (full speed) L2 cache.
5. Not available from IBM after this date. Business Partner inventory may be available.

Netfinity 3000 Processor Upgrades

Part Number	Processor Upgrades with 512 KB Cache	Processor Speed Upgrade[1]
10L5886	Netfinity 300 MHz Upgrade with Pentium II Processor	10U, 11U
10L5883	Netfinity 350/100 MHz, 512KB Processor Upgrade with Pentium II Processor	All 1xU
10L5884	Netfinity 400/100 MHz, 512KB Processor Upgrade with Pentium II Processor	All 1...2xU
10L5900	Netfinity 450/100 MHz, 512KB Processor Upgrade with Pentium II Processor	All 1...3xU
36L9673	Netfinity 500 MHz/512 KB Upgrade with Pentium III Processor	All 1...4xU
33L5112	Netfinity 550 MHz/512 KB Upgrade with Pentium III Processor	All 1...5xU
33L5106	Netfinity 600 MHz/512 KB Upgrade with Pentium III Processor	All 1...6xU
10K2165	Netfinity 700 MHz/256 KB Upgrade with Pentium III Processor[2]	All 8xU

1.Requires removal of the standard processor. A maximum of one processor may be installed. Upgrades may require a BIOS update. To obtain the latest Flash BIOS, access www.ibm.com/pc/support and enter machine type "Type-Model" in Quick Path. Select "Downloadable files" and then "BIOS".
2. Cannot be used to upgrade models 8476 1xU through 7xU.

Netfinity 3000 Memory



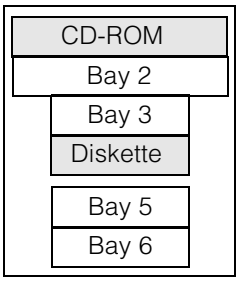
Part Number	Memory Description
01K1133	32 MB 100 MHz ECC SDRAM DIMM
01K1130	64 MB 100 MHz ECC SDRAM DIMM
01K1131	128 MB 100 MHz ECC SDRAM DIMM
01K1132	256 MB 100 MHz ECC SDRAM RDIMM[1]

1. 01K1132 is a registered DIMM and is not compatible with 01K1130, 01K1131, or 01K1133. Installation of this RDIMM requires replacement of the standard DIMM.

Total Memory	All Models Except 15U
64 MB	64 MB DIMM Standard
128 MB	1 x 01K1130
192 MB	1 x 01K1131
256 MB	1 x 01K1131, 1 x 01K1130
320 MB	2 x 01K1131
384 MB	3 x 01K1131[1]
512 MB	2 x 01K1132[1]
768 MB (max)	3 x 01K1132[1]

This table does not represent all possible memory configurations.
1. Replace standard DIMM.

Netfinity 3000 Hard Disk Drive (HDD) Storage



Total Internal Storage[1]	All Models
0 GB	Standard
91 GB	1 x 20L0553
18.2 GB	2 x 20L0553 or 1 x 20L0554
27.3 GB	3 x 20L0553
36.4 GB	4 x 20L0553 or 2 x 20L0554
45.5 GB	2 x 20L0554, 1 x 20L0553
54.6 GB	3 x 20L0554
63.7 GB	3 x 20L0554, 1 x 20L0553
72.8 GB (max)	4 x 20L0554

This table does not represent all possible hard drive configurations.
1. Total Internal Storage listed is within ± 0.2 GB unless otherwise noted.

Bay	Form Factor	Height	Front Access	Usage
1	133 mm (5.25")	HH	yes	IDE CD-ROM
2	133 mm (5.25")[1]	HH	yes	open
3	89 mm (3.5")	SL	yes	open
6	89 mm (3.5")	SL[2]	no	open

1. A 3.5" conversion kit is standard in Bay 2 for installation of 3.5" hard disk drives.
2. Two slim-line bays can be combined to support a single half-high (HH) device.

Part Number	Description	RPM	Height	Bays Supported	Max. Qty.
Internal Hard Disk Drives (HDD)					
20L0553	9.1 GB Wide Ultra2 SCSI HDD[1]	7200	SL	2,3,5,6	4
20L0554	18.2 GB Wide Ultra2 SCSI HDD[1]	7200	SL	2,3,5,6	4
External Storage Expansion Units[2]		**Form Factor**			
35301RU	Netfinity EXP200 Storage Expansion Unit	Rack (3U)			
37L5857	Netfinity EXP200 Rack-to-Tower Conversion Kit[3]	Tower			
37L0075	Netfinity EXP200 350 W Redundant Power Supply[4]	-			

1. Performs as a Wide Ultra SCSI device when attached to the standard (on models 8476 1xU....7xU only) or an optional Wide Ultra SCSI adapter or when sharing a cable with a non-Ultra2 device.
2. Not supported by the onboard external SCSI port. Select an optional SCSI controller then refer to see Appendix D: Cables-Storage Units-Controllers to confirm the controller supports the desired External Storage Expansion Unit and to select a supported cable. For HDD or other expansion unit options, see the specific expansion unit section. rollers.
3. Converts a 35301RU from a 3U rack mount to a tower.
4. The EXP200 includes a single hot-swap 350 W power supply and power cord. Optional hot-swap Netfinity EXP200 350 W Redundant Power Supply (P/N 37L0075) includes an additional power cord.

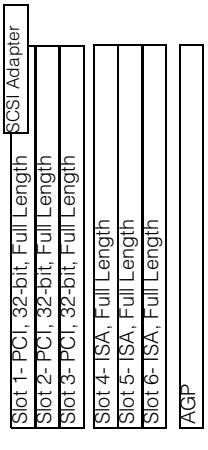
Internal SCSI Cabling

Netfinity 3000 models 8476 1xU...7xU have an IBM PCI Fast/Wide Ultra SCSI Adapter while models 8xU and up have a PCI Wide Ultra2 SCSI Adapter and support up to four internal SCSI devices through the 16-bit internal connector or 15 external SCSI devices through the 16-bit external 68-pin High Density connector; however, when internal SCSI devices are installed to the internal connector, only one SCSI device can be supported from the external connector. All models are cabled internally with a four-drop, 16-bit wide SCSI cable (models 8xU and up contain an Ultra2 SCSI cable) with a built-in active terminator at one end. The other end is attached to the internal 68-pin connector of the SCSI adapter. On the drive models, the hard disk drive (HDD) is attached to the cable connector closest to the active terminator. On open bay models the first disk drive installed should be attached in the same manner. In the event the standard four drop cable is attached to

a RAID controller and a dedicated removable media attachment to the onboard controller is required, an optional, terminated, 16-bit cable is available (Netfinity Two-Drop Internal SCSI Cable P/N 36L9636). This is not an Ultra2 cable; therefore attached devices will operate as Ultra or slower devices. If connecting narrow devices to this cable, additional 68-pin to 50-pin converters (P/N 32G3925) must be ordered. Some narrow devices include a converter in their ship group.

Netfinity 3000 I/O Options

Part Number	Description	Adapter Length	PCI Support	Slots Supported
	Storage Controllers[1]			
01K7364	Netfinity ServeRAID-3L Ultra2 SCSI Adapter[2]	Full	32-bit	3
37L6086	Netfinity ServeRAID-3HB Ultra2 SCSI Adapter[3]	Full	32/64-bit	3
37L6091	Netfinity ServeRAID-4L Ultra160 SCSI Controllerr[4, 11]	Full	32/64-bit	3
02K3454	PCI Fast/Wide Ultra SCSI Adapter	Half	32-bit	1, 2, 3
	Networking[5]			
	Ethernet			
34L1501	Netfinity 10/100 Ethernet PCI Adapter 2	Half	32-bit	1, 2, 3
08L3341	Netfinity 10/100 Fault Tolerant Adapter	Half	32-bit	1, 2, 3
09N9901	10/100 EtherLink Server Adapter by 3Com	Half	32-bit	1, 2, 3
34L0301	Netfinity Gigabit Ethernet SX Adapter	Half	32/64-bit	1, 2, 3
	Token Ring			
34L0501	Token-Ring 100/16/4 High-Speed PCI Adapter	Half	32-bit	1, 2, 3
34L0601	Token-Ring 16/4 PCI Adapter 2	Half	32-bit	1, 2, 3
34L0701	Token-Ring 16/4 PCI Adapter 2 with Wake on LAN[6]	Half	32-bit	1, 2, 3
	Communications			
33L4618	PCI V90 56 Data/Fax Modem[7]	Half	32-bit	1, 2, 3
37L14xx	Serial I/O SST 8, 16 and 128 Port Adapters[8]	Half	32-bit	1, 2, 3
	Systems Management[9]			
94G7578	PC Server Advanced Systems Management Adapter	Full	ISA	4, 5, 6
94G5571	Advanced Systems Management Power Unit[10]	-	-	-


SCSI Adapter
Slot 1- PCI, 32-bit, Full Length
Slot 2- PCI, 32-bit, Full Length
Slot 3- PCI, 32-bit, Full Length
Slot 4- ISA, Full Length
Slot 5- ISA, Full Length
Slot 6- ISA, Full Length
AGP

1. Netfinity 3000 models 8476 1xU...7xU include a single PCI Fast/Wide Ultra SCSI Adapter while models 8xU and up include a PCI Wide Ultra2 SCSI Adapter.
2. Netfinity ServeRAID-3L Ultra2 SCSI Adapter (P/N 01K7364) provides either one internal or one external LVDS SCSI channel.
3. Netfinity ServeRAID-3HB Ultra2 SCSI Adapter (P/N 37L6086) provides one internal and 2 external (0.8mm VHDCI) LVDS SCSI channels. The internal channel can be configured for external usage (0.8mm VHDCI) providing a total of 3 external LVDS SCSI channels. Includes 32 MB of mirrored battery-backup cache which helps protect against data loss in write-back cache mode in the event of a power outage or adapter maintenance.
4. Netfinity ServeRAID-4L Ultra160 SCSI Controller provides 16 MB of ECC cache and either one internal or one external Ultra160 channel. External connector is 0.8-mm VHDCI. Use of Netfinity 3000 models 8476-1xU...7xU standard wide SCSI cabling limits speeds to Ultra SCSI.
5. Netfinity 3000 has an integrated 10/100 PCI Ethernet Controller.
6. The Wake on LAN function of this option is not supported by Netfinity Servers.
7. Due to homologation variances, modem availability may differ by country.
8. See Appendix E for details on Serial I/O options and configuration limitations.
9. Netfinity 3000 provides the following integrated system management features - Vital Product Data (VPD) plus thermal, voltage and fan sensors. For additional functions, optional PC Server Advanced Systems Management Adapter (P/N 94G7578) may be utilized. To enable the adapter's Automated Restart and Alerting as well as Remote Power On/Off features, Advanced Systems Management Power Unit (P/N 94G5571) is required.
10. Provides continuous power to the PC Server Advanced Systems Management Adapter (P/N 94G7578) even when the system is powered off.
11. Planned availability of June 30, 2000.

Netfinity 3000 Power, Monitor & Accessories

Part Number	Description
	Power[1]
	Uninterruptible Power Supply (UPS)[2]
94G3134	APC Smart-UPS 700
94G3135	APC Smart-UPS 1000
	Monitors
65464AN	G54 Color Monitor 15" (348-mm, 13.7" Viewable Image Size), stealth black
65474AN	G74 Color Monitor 17" (403-mm, 15.9" Viewable Image Size), stealth black
6331B2N	E54 Color Monitor 15" (350-mm, 13.8" Viewable Image Size), stealth black
6332J1N	E74 Color Monitor 17" (403-mm, 15.9" Viewable Image Size), stealth black
654841N	G76 Color Monitor 17" (406-mm, 16" Viewable Image Size), stealth black
65494AN	G96 Color Monitor 19" (454-mm, 17.9" Viewable Image Size), stealth black
9513AG1	T55A Flat Panel Color Monitor (381-mm, 15.0" Viewable Image Size), stealth black
9519AG1	T85A Flat Panel Color Monitor (459-mm, 18.1" Viewable Image Size), stealth black

1. Netfinity 3000 includes a 330 W voltage sensing power supply.
2. For runtimes and UPS attributes see Appendix C: UPS Runtime Estimate.

Netfinity 3000 Tape Options

Part Number	Description	Bays Supported	SCSI Interface (bit)	Form Factor	Termination Included	68/50-pin Converter Incl.	Ext. Tape Enclosures[1]
01K1282	12/24GB DDS/3 4-mm Internal Tape Drive	2	8	89 mm (3.5") HH or 133 mm (5.25") HH	Y[2]	Y	3510020
00N7991	20/40 GB DDS/4 4-mm Internal Tape Drive	2	16 Ultra2 LVD	89 mm (3.5") HH or 133 mm (5.25") HH	Y[2]	N	3510020
01K1319	10/20 GB NS Internal SCSI Tape Drive	2, 3	8	89 mm (3.5") SL or 133 mm (5.25") HH	Y[2]	Y	3510020
01K1320	20/40 GB DLT Internal SCSI Tape Drive	N/A[3]	8	133 mm (5.25") FH	Y[4]	Y	3503B0X
	Associated Options						
32G3925	SCSI 68-pin to 50-pin Converter	-	8-16	Internal	N	Y	-
36L9636	Netfinity Two-Drop Internal SCSI Cable[5]	-	16	Internal	Y	N	-
	External Tape Enclosures						
3510020	External Half High SCSI Storage Enclosure[6]	-	8/16	Desktop	N	N	-
3503B0X	DLT External SCSI Enclosure[7]	-	16	Desktop	N	N	-

1. To determine cable requirements, note the tape drive's SCSI interface, the appropriate SCSI controller from the system configurator section, and the desired enclosure, then refer to Appendix D: Cables - Storage Units - Controllers.
2. Tape drive is capable of self termination.
3. Netfinity 3000 does not support full high (FH) devices internally. See External Tape Enclosure column.
4. A 16-bit terminator is included for attachment to an internal cable.
5. Netfinity Two-Drop Internal SCSI Cable (P/N 36L9636) is a wide two-drop terminated cable and is required for attachment of internal tape drives to the onboard SCSI controller of a Netfinity 3000 when the internal hard disk drives are attached to a RAID controller.
6. Provides a black desktop 5.25" half-high (HH) tape enclosure. Connector is configurable as 50-pin Centronix or 68-pin high density. Requires either tape drive self termination or SCSI-2 16-bit Active Terminator (P/N 32G3918).
7. Provides a black desktop DLT tape enclosure with a 68-pin high density external connector. Requires termination by the tape drive or by installation of a SCSI-2 16-bit Active Terminator (P/N 32G3918).

NOTE: SCSI support is provided by system unit onboard (standard) controller (no RAID function) or PCI Fast Wide Ultra SCSI Adapter P/N 02K3454. Additional tape attributes can be found in Appendix A: Tape Drive Attributes.

Sample Configurations

Note: The following sample configurations are for illustration only and may not be suitable for any specific customer installation. Contact your IBM Business Partner or IBM Marketing Representative for assistance with your specific configuration requirements.

Workgroup Intranet Server

Part Number	Description	Quantity
8476-91U	Netfinity 3000 Pentium III 700 MHz/256 KB L2, 64 MB ECC, 9.1 GB, 40X, PCI/ISA	1
01K1130	64 MB 100 MHz ECC SDRAM DIMM [1]	1
20L0553	9.1 GB Wide Ultra2 SCSI HDD	2
01K1319	10/20 GB NS Internal SCSI Tape Drive	1
65464AN	G54 Color Monitor 15" (348 mm, 13.7" Viewable Image Size), stealth black	1
94G3135	APC Smart-UPS 1000	1

1. For a total of 128 MB of system memory.

An Internet server is a server that handles all requests from the Internet (Intranet or Extranet). Usually, this type of server has the same characteristics as a normal file server. The main difference is that an Internet server talks a different language (TCP/IP vs. NETBEUI or IPX/SPX) and often needs to do an extra security check (Firewall). In the case of an Internet server, the server itself talks mostly to just one client, the Internet Service Provider (ISP), instead of many clients like a file server does.

With this in mind, the IBM Netfinity 3000 was selected to provide an affordable price point for the growing Internet server market with Pentium III processing, 128 MB of system memory (expandable to 768 MB), integrated 10/100 Ethernet controller, and high-performance storage, and power protection with an APC Smart-UPS. The configuration includes a tape backup unit for secure backup of critical data in the event of a system or storage failure.

File and Print Server

Part Number	Description	Quantity
8476-81U	Netfinity 3000 Pentium III 650 MHz/256 KB L2, 64 MB ECC, 9.1 GB, 40X, PCI/ISA	1
01K1130	64 MB 100 MHz ECC SDRAM DIMM[1]	1
20L0553	9.1 GB Wide Ultra2 SCSI HDD	1
01K1319	10/20 GB NS Internal SCSI Tape Drive	1
65464AN	G54 Color Monitor 15" (348 mm, 13.7" Viewable Image Size), stealth black	1
94G3134	APC Smart-UPS 700	1

1. For a total of 128 MB of system memory.

A small business or departmental server is usually required to perform all typical server functions while servicing up to 50 users in a normal workgroup computing environment, but doesn't require the high-end performance and fault tolerance properties of larger servers. The sample configuration above consists of an IBM Netfinity 3000 with 128 MB of memory and 9.1 GB of hard disk space. It has enough processor power and memory to run most current network operating systems comfortably and enough hard disk drive space to store a significant amount of data with additional internal storage expansion still available. Demanding network traffic is effectively handled by the standard 100 Mbps Ethernet connection. This configuration also includes a tape backup unit, monitor, and a UPS to keep the system protected from power surges and outages.

IBM Netfinity 3500 M10 Configurator

Part Number	Processor Speed (MHz)	Number of Processors (Std/Max)	L2 ECC Cache. (KB)	Memory (Std./Max.) (R=RDIMM)	Form Factor	Power Supply Quantity (Std/Max)	Hot-Swap (Power, Slots, HDD, Fans)	Redundancy (Optional, Standard)	Adv. System Management Process	Onboard Ethernet (Mbps)	SCSI Controller (Dual, Ultra, RAID)	Removable Media Bays (Total/Avail.)	Internal Hard Disk Drive (Std/Max)	CD-ROM (IDE)	Bays: (Total/Avail.)	Slots (Total/Avail.)
8655-11Y	500[2]	1/2	512	64 MB/1 GB	Tower	1/1	-	-	-	10/100	U	4/2	72.8 GB	40X-17X[1]	6/4	6/5
8655-12Y	500[2]	1/2	512	128 MB/1 GB	Tower	1/1	-	-	-	10/100	U	4/2	9.1/72.8 GB[3]	40X-17X[1]	6/3	6/5
8655-21Y	550[2]	1/2	512	128 MB/1 GB	Tower	1/1	-	-	-	10/100	U	4/2	72.8 GB	40X-17X[1]	6/4	6/5
8655-22Y	550[2]	1/2	512	128 MB/1 GB	Tower	1/1	-	-	-	10/100	U	4/2	9.1/72.8 GB[3]	40X-17X[1]	6/3	6/5
8655-31Y	600[2]	1/2	512	128 MB/1 GB	Tower	1/1	-	-	-	10/100	U	4/2	72.8 GB	40X-17X[1]	6/4	6/5
8655-32Y	600[2]	1/2	512	128 MB/1 GB	Tower	1/1	-	-	-	10/100	U	4/2	9.1/72.8 GB[3]	40X-17X[1]	6/3	6/5

1. Variable read rate. Actual playback speed will vary and is often less than the maximum possible.
2. Intel Pentium III processor.
3. Standard Hard Disk Drives (HDDs) are 7200 RPM. Maximum internal capacities assume replacement of standard hard disk drives with the largest supported IBM hard disk drives.

Netfinity 3500 M10 Processor Upgrades

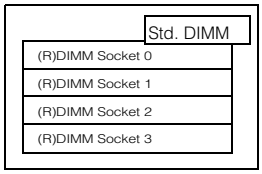
Part Number	Processor Upgrades with 512 KB Cache	SMP Support[1]	Processor Speed Upgrade[2]
36L9673	Netfinity 500 MHz/512 KB Upgrade with Pentium III Processor	All 1xY	-
33L5112	Netfinity 550 MHz/512 KB Upgrade with Pentium III Processor	All 2xY	All 1xY
33L5106	Netfinity 600 MHz/512 KB Upgrade with Pentium III Processor	All 3xY	All 1...2xY

1. One additional processor may be installed, providing a maximum of two. All processors must be identical in type, speed, and cache size.
2. Requires removal of the standard processor. A maximum of two processors may be installed. All processors must be identical in type, speed and cache size. Upgrades may require a BIOS update. To obtain the latest Flash BIOS, access www.ibm.com/pc/support and enter machine type "Type-Model" in Quick Path. Select "Downloadable files" and then "BIOS".

Netfinity 3500 M10 Memory

Part Number	Memory Description
01K1130	64 MB 100 MHz ECC SDRAM DIMM
01K1131	128 MB 100 MHz ECC SDRAM DIMM
01K1132	256 MB 100 MHz ECC SDRAM Registered DIMM[1]

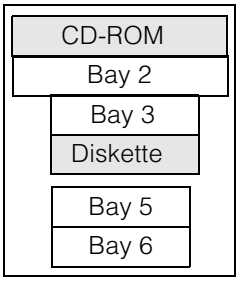
1. P/N 01K1132 is a registered DIMM and is not compatible with 01K1130 or 01K1131. Installation of this RDIMM requires replacement of the standard DIMM.



Total Memory	Model 11Y	All Models Except 11Y
64 MB	64 MB DIMM standard	-
128 MB	1 x 01K1130	128 MB DIMM standard
192 MB	1 x 01K1131	1 x 01K1130
256 MB	1 x 01K1131, 1 x 01K1130	1 x 01K1131 or 1 x 01K1132[1]
320 MB	2 x 01K1131	1 x 01K1131, 1 x 01K1130
384 MB	2 x 01K1131, 1 x 01K1130	2 x 01K1131
448 MB	3 x 01K1131	2 x 01K1131, 1 x 01K1130
512 MB	4 x 01K1131 or 2 x 01K1132[2]	3 x 01K1131 or 2 x 01K1132[1]
768 MB	3 x 01K1132[1]	3 x 01K1132[1]
1024 MB (max)	4 x 01K1132[2]	4 x 01K1132[2]

This table does not represent all possible memory configurations.
1. P/N 01K1132 is a registered DIMM and is not compatible with 01K1130 or 01K1131. Installation of this RDIMM requires replacement of the standard DIMM.
2. Replace standard DIMM.

Netfinity 3500 M10 Hard Disk Drive (HDD) Storage



Open Bay Examples[2]				
Total Internal Storage[1]	7,200 RPM Hard Disk Drives (HDDs)		10,000 RPM Hard Disk Drives (HDDs)	
	9.1 GB	18.2 GB	9.1 GB	18.2 GB
9.1 GB	1 x 20L0553	-	1 x 00N8071	-
18.2 GB	2 x 20L0553 or	1 x 20L0554	2 x 00N8071 or	1 x 00N8072
27.3 GB	3 x 20L0553	-	3 x 00N8071	-
36.4 GB	4 x 20L0553 or	2 x 20L0554	4 x 00N8071 or	2 x 00N8072
54.6 GB	-	3 x 20L0554	-	3 x 00N8072
72.8 GB (max)	-	4 x 20L0554	-	4 x 00N8072

This table does not represent all possible hard drive configurations.
1. Total Internal Storage listed is within ± 0.2GB unless otherwise noted.
2. When configuring disk drive models (8655-x2Y) which include a single 9.1 GB 7,200 RPM HDD, use the 9.1 GB 7200 RPM column and order one less 20L0553 than the table indicates.

Bay	Form Factor	Height	Front Access	Usage
1	133 mm (5.25")	HH	yes	IDE CD-ROM
2	133 mm (5.25")[1]	HH	yes	open
3	89 mm (3.5")	SL	yes	open
4	89 mm (3.5")	SL	yes	diskette
5	89 mm (3.5")	SL[2]	no	HDD on drive models
6	89 mm (3.5")	SL[2]	no	open

1. A 3.5" conversion kit is standard in Bay 2 for installation of 3.5" hard disk drives.
2. Two slim-line (SL) bays can be combined to support a single half-high (HH) device.

Part Number	Description	RPM	Height	Bays Supported	Max Qty.
Internal Hard Disk Drives (HDD)					
20L0553	9.1 GB Wide Ultra2 SCSI HDD[1]	7200	SL	2,3,5,6	4
20L0554	18.2 GB Wide Ultra2 SCSI HDD[1]	7200	SL	2,3,5,6	4
00N8071	9.1 GB 10,000 rpm Ultra160 SCSI HDD[1]	10000	SL	2,3,5,6	4
00N8072	18.2 GB 10,000 rpm Ultra160 SCSI HDD[1]	10000	SL	2,3,5,6	4

External Storage Expansion Units[2]		Form Factor
35301RU	Netfinity EXP200 Storage Expansion Unit	Rack (3U)
37L5857	Netfinity EXP200 Rack-to-Tower Conversion Kit[3]	Tower
37L0075	Netfinity EXP200 350 W Redundant Power Supply[4]	-

1. Performs as a Wide Ultra SCSI device when attached to the standard or an optional Wide Ultra SCSI adapter or when sharing a cable with a non-Ultra2 device.
2. Not supported by the onboard external SCSI port. Select an optional SCSI controller then refer to see Appendix D: Cables-Storage Units-Controllers to confirm the controller supports the desired External Storage Expansion Unit and to select a supported cable. For HDD or other expansion unit options, see the specific expansion unit section.
3. Converts a 35301RU from a 3U rack mount to a tower.
4. The EXP200 includes a single hot-swap 350 W power supply and power cord. Optional hot-swap Netfinity EXP200 350 W Redundant Power Supply (P/N 37L0075) includes an additional power cord.

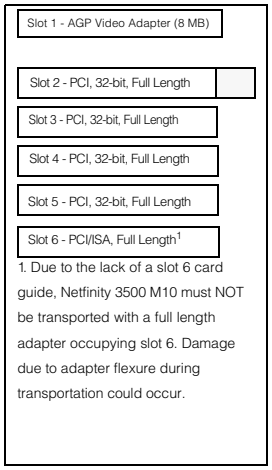
Netfinity 3500 M10 Internal SCSI Cabling

Netfinity 3500 M10 systems are cabled internally with a four-drop, 16-bit wide SCSI cable with a built-in active terminator at one end of the cable. The other end of the cable is attached to the internal 68-pin single-ended connector of the dual channel Ultra SCSI controller. On drive models the hard disk drive is attached to the cable connector closest to the active terminator. On open bay models the first disk drive installed should be attached in the same manner to ensure the highest signal

quality. In the event the standard four-drop cable is attached to a RAID controller and a dedicated removable media attachment to the onboard controller is required, an optional, terminated, 16-bit cable is available (Netfinity Two-Drop Internal SCSI Cable P/N 36L9636). If connecting narrow devices to this cable, additional 68-pin to 50-pin converters (P/N 32G3925) must be ordered. Some narrow devices include a converter in their ship group. The second Ultra SCSI channel is available for external device support through an external 68-pin high density connector.

Netfinity 3500 M10 I/O Options

Part Number	Description	Adapter Length	PCI Support	Slots Supported
	Storage Controllers[1]			
01K7364	Netfinity ServeRAID-3L Ultra2 SCSI Adapter[2]	Full	32-bit	3...6[4, 5]
37L6086	Netfinity ServeRAID-3HB Ultra2 SCSI Adapter[3]	Full	32/64-bit	3...6[4, 5]
02K3454	PCI Fast/Wide Ultra SCSI Adapter	Half	32-bit	2...6
	Networking[6]			
	Ethernet			
34L1501	Netfinity 10/100 Ethernet PCI Adapter 2	Half	32-bit	2...6
08L3341	Netfinity 10/100 Fault Tolerant Adapter	Half	32-bit	2...6
09N9901	10/100 EtherLink Server Adapter by 3Com	Half	32-bit	2...6
34L0301	Netfinity Gigabit Ethernet SX Adapter	Half	32/64-bit	3...6[5]
	Token Ring			
34L0501	Token-Ring 100/16/4 High-Speed PCI Adapter	Half	32-bit	2...6
34L0601	Token-Ring 16/4 PCI Adapter 2	Half	32-bit	2...6
	Communications[7]			
33L4618	PCI V.90 56 Data/Fax Modem[8]	Half	32-bit	2...6
37L14xx	Serial I/O SST 8, 16 and 128 Port Adapters[9]	Half	32-bit	2...6[9]
	Systems Management[10]			


Slot 1 - AGP Video Adapter (8 MB)
Slot 2 - PCI, 32-bit, Full Length
Slot 3 - PCI, 32-bit, Full Length
Slot 4 - PCI, 32-bit, Full Length
Slot 5 - PCI, 32-bit, Full Length
Slot 6 - PCI/ISA, Full Length[1]
1. Due to the lack of a slot 6 card guide, Netfinity 3500 M10 must NOT be transported with a full length adapter occupying slot 6. Damage due to adapter flexure during transportation could occur.

1. Netfinity 3500 M10 has two integrated Wide Ultra SCSI channels. One is internal and the other is external with a 68-pin high density connector.
2. Netfinity ServeRAID-3L Ultra2 SCSI Adapter (P/N 01K7364) provides either one internal or one external (0.8-mm VHDCI) LVDS SCSI channel.
3. Netfinity ServeRAID-3HB Ultra2 SCSI Adapter (P/N 37L6086) provides one internal and two external (0.8-mm VHDCI) LVDS SCSI channels. The internal channel can be configured for external usage (0.8-mm VHDCI connector) providing a total of three external LVDS SCSI channels. Includes 32 MB of mirrored battery backup cache, which helps protect against data loss in write-back cache mode in the event of a power outage or adapter maintenance.
4. Due to the lack of a slot 6 card guide, Netfinity 3500 M10 must NOT be transported with a full length adapter occupying slot 6. Damage due to adapter flexure during transportation could occur.
5. Slot 2 will not support installation of a RAID or 64-bit PCI adapter.
6. Netfinity 3500 M10 has an integrated 10/100 PCI Ethernet Controller.
7. Netfinity 3500 M10 includes two USB ports, two high-speed, NS16550A software-compatible serial ports, and one high-speed parallel port supporting devices using SSP/EPP/ECP protocols adhering to the IEEE 1284 standard.
8. Due to homologation variances, modem availability may differ by country.
9. See Appendix E for details on Serial I/O options and configuration limitations. A maximum of four Serial I/O adapters (any combination of P/N 37L1414, 37L1415, 37L1416, and 37L1423) may be installed.
10. Netfinity 3500 M10 integrated system management features include Vital Product Data (VPD) and alerts generated through Netfinity Manager from thermal, voltage and fan sensors.

Netfinity 3500 M10 Power, Monitor & Accessories

Part Number	Description
	Power[1]
	Uninterruptible Power Supply (UPS)[2]
94G3134	APC Smart-UPS 700
94G3135	APC Smart-UPS 1000
	Monitors
65464AN	G54 Color Monitor 15" (348-mm, 13.7" Viewable Image Size), stealth black
65474AN	G74 Color Monitor 17" (403-mm, 15.9" Viewable Image Size), stealth black
6331B2N	E54 Color Monitor 15" (350-mm, 13.8" Viewable Image Size), stealth black
6332J1N	E74 Color Monitor 17" (403-mm, 15.9" Viewable Image Size), stealth black
654841N	G76 Color Monitor 17" (406-mm, 16" Viewable Image Size), stealth black
65494AN	G96 Color Monitor 19" (454-mm, 17.9" Viewable Image Size), stealth black
9513AG1	T55A Flat Panel Color Monitor (381-mm, 15.0" Viewable Image Size), stealth black
9519AG1	T85A Flat PanelColor Monitor (459-mm, 18.1" Viewable Image Size), stealth black

1. Netfinity 3500 M10 includes a 330 W voltage sensing power supply.
2. For runtimes and UPS attributes see Appendix C: UPS Runtime Estimate.

Netfinity 3500 M10 Tape Options

Part Number	Description	Bays Supported	SCSI Interface (bit)	Form Factor	Termination Included	68/50-pin Converter Incl.	Ext. Tape Enclosures[1]
01K1282	12/24 GB DDS/3 4-mm Internal Tape Drive	2	8	89 mm (3.5") HH or 133 mm (5.25") HH	Y[2]	Y	3510020
00N7991	20/40 GB DDS/4 4-mm Internal Tape Drive	2	16 Ultra2 LVD	89 mm (3.5") HH or 133 mm (5.25") HH	Y[2]	N	3510020, 3551001
01K1319	10/20 GB NS Internal SCSI Tape Drive	2,3	8	89 mm (3.5") SL or 133 mm (5.25") HH	Y[2]	Y	3510020, 3551001
01K1325	20/40 GB 8-mm Internal SCSI Tape Drive	2	16	133 mm (5.25") HH	N[3]	N	3510020,[4] 3551001
00N7990	40/80 GB DLT Internal SCSI Tape Drive	N/A[5]	16 Ultra2 LVD	133 mm (5.25") FH	N	N	3503BOX,[4] 3551001
	Associated Options						
32G3918	SCSI-2 16-bit Active Terminator	-	16	External	Y	N	3510020
32G3925	SCSI 68-pin to 50-pin Converter	-	8-16	Internal	N	Y	3551001
36L9636	Netfinity Two-Drop Internal SCSI Cable[6]	-	16	Internal	Y	N	-
	External Tape Enclosures						
3510020	External Half High SCSI Storage Enclosure[7]	-	8/16	Desktop	N	N	-
3551001	NetMEDIA Storage Expansion Unit EL[8]	-	16	Rack	Y	N	-
10L7113	NetMEDIA Systems Management Adapter[9]	-	16 LVD	-	N	N	3551001
3503BOX	DLT External SCSI Enclosure[10]	-	16	Desktop	N	N	-

1. To determine cable requirements, note the tape drive's SCSI interface, the appropriate SCSI controller from the system configurator section, and the desired enclosure, then refer to Appendix D: Cables-Storage Units-Controllers.
2. Tape drive is capable of self termination.
3. Termination is provided by the system unit's standard 4-drop SCSI cabling.
4. Requires SCSI-2 16-bit Active Terminator (P/N 32G3918).
5. Netfinity 3500 M10 does not support full high devices internally. See External Tape Enclosure column.
6. Netfinity Two-Drop Internal SCSI Cable (P/N 36L9636) is a wide two-drop terminated cable and is required for attachment of internal tape drives to the onboard SCSI controller of a Netfinity 3500 M10 when the hard disk drives are attached to a RAID Controller.
7. Provides a black desktop 5.25" half-high (HH) tape enclosure. Connector is configurable as 50-pin Centronix or 68-pin high density. Requires either tape drive self termination or SCSI-2 16-bit Active Terminator (P/N 32G3918).
8. Provides a black 3U, 19" rack or NetBAY3 mountable tape enclosure. Provides two full high (FH) or four half high (HH) extended length 5.25" bays. External connector is 0.8-mm VHDCI. Includes two power supplies and two power cords.
9. Installs in a 3551001. Provides repeater function and LVDS interface allowing longer cable lengths and auto-termination when the 3551001 is powered off.
10. Provides a black desktop DLT tape enclosure with a 68-pin high density external connector. Requires termination by the tape drive or by installation of a SCSI-2 16-bit Active Terminator (P/N 32G3918).

NOTE: SCSI support for tape drives is provided by system unit onboard (standard) controller (no-RAID function) or PCI Fast Wide Ultra SCSI Adapter P/N 02K3454. Additional tape attributes can be found in Appendix A: Tape Drive Attributes.

Sample Configurations

Note: The following sample configurations are for illustration only and may not be suitable for any specific customer installation. Contact your IBM Business Partner or IBM Marketing Representative for assistance with your specific configuration requirements.

Internet Server

Part Number	Description	Quantity
8655-22Y	Netfinity 3500 M10 (Pentium III 550/128 MB/9.1 GB)	1
01K1131	128 MB 100 MHz ECC SDRAM DIMM[1]	1
20L0553	9.1 GB Wide Ultra2 SCSI HDD[2]	2
01K1319	10/20 GB NS Internal SCSI Tape Drive	1
65464AN	G54 Color Monitor 15" (348 mm, 13.7" Viewable Image Size), stealth black	1
94G3134	APC Smart-UPS 700	1

1. For a total of 256 MB of system memory.
2. For a total of 27.3 GB of internal storage.

An Internet server is a server that handles all requests from the Internet (Intranet or Extranet). Usually, this type of server has the same characteristics as a normal file server. The main difference is that an Internet server talks a different language (TCP/IP vs. NETBEUI or IPX/SPX) and often needs to do an extra security check (Firewall). In the case of an Internet server, the server itself talks mostly to just one client, the Internet Service Provider (ISP), instead of many clients like a file server does.

With this in mind, the IBM Netfinity 3500 M10 was selected to provide an affordable price point for the growing Internet server market with two-way Pentium III processing, 256 MB of system memory (expandable to 1 GB), and power protection with an APC Smart-UPS.

The network configuration depends on the method that will be used to connect the server to the Internet. Usually fast Ethernet routers are used, but if other methods are used, you can add the appropriate adapter. The configuration includes a tape backup unit for secure backup of critical data in the event of a system or storage failure.

File and Print Server

Part Number	Description	Quantity
8655-11Y	Netfinity 3500 M10 (Pentium III 500/64 MB/0 GB)	1
01K1131	128 MB 100 MHz ECC SDRAM DIMM[1]	1
20L0554	18.2 GB Wide Ultra2 SCSI HDD[2]	3
01K1325	20/40 GB 8-mm Internal SCSI Tape Drive	1
65464AN	G54 Color Monitor 15" (348 mm, 13.7" Viewable Image Size) stealth black	1
94G3134	APC Smart-UPS 700	1

1. For a total of 192 MB of system memory.
2. For a total of 54.6 GB of internal storage.

A small business or departmental server is usually required to perform all typical server functions while servicing up to 100 users in a normal workgroup computing environment, but doesn't require the high-end performance and fault tolerance properties of larger servers.

The sample configuration above consists of an IBM Netfinity 3500 M10 with 192 MB of memory and 54.6 GB of hard disk space. It has enough processor power and memory to run most current network operating systems comfortably and enough hard disk drive space to store a significant amount of data with additional external storage expansion still available. Demanding network traffic is effectively handled by the standard 100 Mbps Ethernet connection.

This configuration also includes a tape backup unit, monitor, and a UPS to keep the system protected during power surges and outages

Application Server

Part Number	Description	Quantity
8655-32Y	Netfinity 3500 M10 (Pentium III 600/128 MB/9.1 GB)	1
33L5106	Netfinity 600 MHz/512 KB Upgrade with Pentium III Processor	1
01K1132	256 MB 100 MHz ECC SDRAM Registered DIMM[1]	1
01K7364	Netfinity ServeRAID-3L Ultra2 SCSI Adapter	1
36L9636	Netfinity Two-Drop Internal SCSI Cable	1
20L0553	9.1 GB Wide Ultra2 SCSI HDD[2]	2
01K1319	10/20 GB NS Internal SCSI Tape Drive	1
65464AN	G54 Color Monitor 15" (348 mm, 13.7" Viewable Image Size), stealth black	1
94G3134	APC Smart-UPS 700	1

1. For a total of 256 MB of registered system memory. Requires removal of standard memory.
2. For a total of 27.3 GB of internal storage .

An application server differs from a file server and print server in that it has a higher workload, in providing application serving requirements for users. With this in mind, the IBM Netfinity 3500 M10 was selected to provide an affordable price point for an application server, with two-way Pentium III processing, 256 MB of system memory (expandable to 1 GB), and availibilty features such as RAID protected internal storage and power protection with an APC Smart-UPS.

IBM Netfinity 4000R Configurator

Part Number[4]	Processor Speed (MHz)	Number of Processors (Std/Max)[1]	L2 ECC Cache. (KB)	Memory (Std/Max) R=RDIMM[1]	Form Factor	Power Supply Quantity (Std/Max) Hot-Swap (Power, Slots, HDD, Fans)	Redundancy (Optional, Standard)	Adv. System Management Processor	Onboard Ethernet (mbps)	SCSI Controller (Dual, Ultra, RAID)	Removable Media Bays (Total/Avail)	Internal Hard Disk Drive (Std/Max)[1]	CD-ROM (IDE)	Bays: (Total/Avail)[1]	Slots: (Total/Avail)[1]
8652-11Y[2, 9]	500[5]	1/2	512	256MB/2GB	Rack(1U)	1/1	-	-	-	2 x10/100	U	1/0	9.1/ 36.4GB[7]	24X-10X[8]	3/1	2/1
8652-21Y[2, 9]	500[5]	2/2	512	512MB/2GB	Rack(1U)	1/1	-	-	-	2 x10/100	U	1/0	18.2/ 36.4GB[7]	24X-10X[8]	3/0	2/1
8652-22Y[2, 9]	500[5]	2/2	512	1GB/2GB	Rack(1U)	1/1	-	-	-	2 x10/100	U	1/0	18.2/ 36.4GB[7]	24X-10X[8]	3/0	2/1
8652/8653 51Y	650[6]	1/2	256	256MB/2GB	Rack(1U)	1/1	-	-	-	2 x10/100	U	1/0	9.1/ 36.4GB[7]	24X-10X[8]	3/1	2/1
8652/8653 61Y	650[6]	2/2	256	512GB/2GB	Rack(1U)	1/1	-	-	-	2 x10/100	U	1/0	18.2/ 36.4GB[7]	24X-10X[8]	3/0	2/1
8652-62Y[2]	650[6]	2/2	256	1GB/2GB	Rack(1U)	1/1	-	-	-	2 x10/100	U	1/0	18.2/ 36.4GB[7]	24X-10X[8]	3/0	2/1
8653-62Y[3]	650[6]	2/2	256	512MB/2GB	Rack(1U)	1/1	-	-	-	2 x10/100	R-U2	1/0	18.2/ 36.4GB[7]	24X-10X[8]	3/0	2/1
8652-63Y[2]	650[6]	2/2	256	2GB/2GB	Rack(1U)	1/1	-	-	-	2 x10/100	U	1/0	18.2/ 36.4GB[7]	24X-10X[8]	3/0	2/1
8652-64Y[2]	650[6]	2/2	256	2GB/2GB	Rack(1U)	1/1	-	-	-	2 x10/100	U	1/0	36.4/ 36.4GB[7]	24X-10X[8]	3/0	2/1
8652/8653 31Y	750[6]	1/2	256	256GB/2GB	Rack(1U)	1/1	-	-	-	2 x10/100	U	1/0	9.1/ 36.4GB[7]	24X-10X[8]	3/1	2/1
8652/8653 41Y	750[6]	2/2	256	512GB/2GB	Rack(1U)	1/1	-	-	-	2 x10/100	U	1/0	18.2/ 36.4GB[7]	24X-10X[8]	3/0	2/1
8652/8653 42Y	750[6]	2/2	256	1GB/2GB	Rack(1U)	1/1	-	-	-	2 x10/100	U	1/0	18.2/ 36.4GB[7]	24X-10X[8]	3/0	2/1
8652/8653 43Y	750[6]	2/2	256	2GB/2GB	Rack(1U)	1/1	-	-	-	2 x10/100	U	1/0	18.2/ 36.4GB[7]	24X-10X[8]	3/0	2/1
8652/8653 44Y	750[6]	2/2	256	512GB/2GB	Rack(1U)	1/1	-	-	-	2 x10/100	U	1/0	36.4/ 36.4GB[7]	24X-10X[8]	3/0	2/1
8653-45Y[3]	750[6]	2/2	256	1GB/2GB	Rack(1U)	1/1	-	-	-	2 x10/100	R-U2	1/0	18.2/ 36.4GB[7]	24X-10X[8]	3/0	2/1
8653-46Y[3]	750[6]	2/2	256	2GB/2GB	Rack(1U)	1/1	-	-	-	2 x10/100	R-U2	1/0	36.4/ 36.4GB[7]	24X-10X[8]	3/0	2/1

1. The Netfinity 4000R does not support customer installation of adapters, HDDs, memory, processors, or any other devices that must be installed inside the server. Non-standard features must be installed at the factory. Contact your IBM Marketing Representative for more information.
2. Available in the US only.
3. Not available in the US.
4. Not all models are available in all countries. Models beginning with "8652" are available in the United States only. Models beginning with "8653" are only available outside the United States. Latin America availability is limited to Brazil and Mexico. Each Netfinity 4000R requires an available console switch port.and is housed in a 19" rack mountable drawer and ships standard without a keyboard or mouse. See "Rack and NetBay" under "Netfinity 4000R Power, Monitor & Accessories" for supported IBM racks.
5. Intel Pentium III processor.
6. Intel Pentium III processor with advanced transfer (full speed) L2 cache.
7. Standard Hard Disk drives (HDD) are 7200 RPM. Maximum internal capacities assume factory replacement of standard hard disk drives with the largest supported IBM hard disk drives.
8. Variable read rate. Actual playback speed will vary and is often less than the maximum possible.
9. Requires Console Cable Set P/N 94G7447.

Netfinity 4000R Processor Upgrades

Part Number	Processor Upgrades with 512KB Cache or 256KB Advanced Transfer Cache	SMP Support
N/A[1]	Netfinity 500 MHz/512 KB Upgrade with Pentium III Processor	All 1xY[2]
N/A[1]	Netfinity 650 MHz/256 KB Upgrade with Pentium III Processor	51Y[2]
N/A[1]	Netfinity 700 MHz/256 KB Upgrade with Pentium III Processor	31Y[2]

1.The Netfinity 4000R does not support customer installation of adapters, HDDs, memory, processors, or any other devices that must be installed inside the server. Non-standard features must be installed at the factory. Contact your IBM Marketing Representative for more information.
2. One additional processor may be installed, providing a maximum of two. All processors must be identical in type, speed and cache size.

Netfinity 4000R Memory

RDIMM Socket
RDIMM Socket
RDIMM Socket
RDIMM Socket

Part Number	Memory Description
N/A[1]	128MB 100MHz ECC SDRAM RDIMM
N/A[1]	256MB 100MHz ECC SDRAM RDIMM
N/A[1]	512MB 100MHz ECC SDRAM RDIMM

1. The Netfinity 4000R does not support customer installation of adapters, HDDs, memory, processors, or any other devices that must be installed inside the server. Non-standard features must be installed at the factory. Contact your IBM Marketing Representative for more information.

Netfinity 4000R Hard Disk Drive (HDD) Storage

Bay	Form Factor	Height	Front Access	Usage
1	133 mm (5.25)	SL	yes	IDE CD-ROM
2[1]	89 mm (3.5")	SL	no	open/HDD
3[1]	89 mm (3.5")	SL	no	Std HDD

1. The Netfinity 4000R does not support customer installation of adapters, HDDs, memory, processors, or any other devices that must be installed inside the server. Non-standard features must be installed at the factory. Contact your IBM Marketing Representative for more information.

Part Number	Description	RPM	Height
Internal Hard Disk Drives (HDD)			
N/A[1]	9.1GB 7200 RPM SCSI HDD	7200	SL
N/A[1]	18.2GB 7200 RPM SCSI HDD	7200	SL

1. A maximum of two SL HDDs may be installed. The Netfinity 4000R does not support customer installation of adapters, HDDs, memory, processors, or any other devices that must be installed inside the server. Non-standard features must be installed at the factory. Contact your IBM Marketing Representative for more information.

Internal SCSI Cabling

Netfinity 4000R models (except 8653-45Y, 46Y and 62Y) contain a single channel Wide Ultra SCSI adapter that has two 68-pin connectors to support SCSI device attachment. One connector supports 16-bit internal SCSI devices, while the other supports a 16-bit external device. Up to two Wide Ultra SCSI HDDs can be supported internally. External support is limited to one SCSI device. Models 8653-45Y, 46Y and 62Y contain a single ServeRAID-3L RAID adapter for internal use only. Non-standard features must be installed at the factory. Contact your IBM Marketing Representative for more information.

Netfinity 4000R I/O Options

Part Number	Description
Storage Controllers[2]	
N/A[1]	Netfinity ServeRAID-3L Ultra2 SCSI Adapter (i channel)
N/A[1]	PCI Fast/Wide Ultra SCSI Adapter (1 channel)
N/A[1]	Ultra SCSI Adapter (2 channel)
N/A[1]	Ultra2 SCSI Adapter (1 channel)
Networking[3]	
N/A[1]	Netfinity 10/100 Ethernet PCI Adapter 2
N/A[1]	Netfinity Gigabit Ethernet SX Adapter

1. The Netfinity 4000R does not support customer installation of adapters, HDDs, memory, processors, or any other devices that must be installed inside the server. Non-standard features must be installed at the factory. Contact your IBM Marketing Representative for more information.
2. Netfinity 4000R models 8653-45Y, 46Y and 62Y contain a single channel ServeRAID-3L adapter for internal use only. Other models contain a single channel Wide Ultra SCSI adapter with an internal 68-pin connector supporting up to two internal HDDs and an external 68-pin high density connector for attachment of a single external SCSI device.
3. Netfinity 4000R contains two integrated 10/100 PCI Ethernet controllers.

Netfinity 4000R Power, Monitor & Accessories

Part Number	Description
	Power[1]
94G6667	Power Cable Type A14 (4.3m, 14 ft.)[2]
94G7448	Power Cable Type C12 (3.7m, 12 ft.)[3]
	Power Distribution Units (PDU)
94G6666	100-120V Power Distribution Unit[4]
94G7450	200-240V Power Distribution Unit[5]
	Uninterruptible Power Supply (UPS)
94G6674	APC Smart-UPS 1400RMB[6]
94G6676	APC Smart-UPS 3000RMB[7]
37L6861	APC Smart-UPS 5000RMB[17]
	Monitors[8]
65464AN	G54 Color Monitor 15" (348 mm, 13.7" Viewable Image Size), stealth black[9]
6331B2N	E54 Color Monitor 15" (350-mm, 13.8" Viewable Image Size), stealth black[9]
9513AG1	T55A Flat Panel Color Monitor (381 mm, 15.0" Viewable Image Size), stealth black[10]
	Rack and NetBay[11]
930842P	Netfinity Enterprise Rack
930842X	Netfinity Enterprise Expansion Cabinet
9306900	Netfinity Rack[12]
36L9703	Netfinity Rack Extension Kit
9306200	Netfinity NetBAY22[12]
36L9702	NetBAY22 Rack Extension Kit
	Keyboard and Mouse[13]
28L3644	Space Saver II Keyboard[14, 16]
01K1260	TrackPoint IV 104-key Black Keyboard[15, 16]
28L3621	Preferred Keyboard (stealth black)[15]
28L3673	Sleek 2-Button Stealth Black Mouse
	Console Options[8]
94G7445	Console Server Selector Switch (8-port)
28L0542	Netfinity Console Server Selector Switch (4-port)
94G7447	Console Cable Set - 12 ft. (3.66m)[18]

1. Netfinity 4000R includes a single 150W power supply and a single 2.8 m (9 ft.) power cord with an IEC 320-C14 connector on the outlet end for attachment to a high voltage UPS or PDU.
2. For attachment to low voltage UPS part number 94G6674 or 94G6676, PDU part number 94G6666 or other NEMA 5-15R outlet.
3. For attachment to a high voltage UPS or PDU or other IEC 320-C13 outlet.
4. Requires optional power cord 94G6667. Contains eight NEMA 5-15R outlets and one communication link, Supports up to 12 amps.
5. Contains ten IEC 320-C13 outlets and three communication links, Supports up to 16 amps.
6. Requires optional power cord 94G6667. Height is 3U. See "Rack and NetBAY" for supported IBM racks. Contains six NEMA 5-15R outlets.
7. Requires optional power cord 94G6667. Height is 3U. See "Rack and NetBAY" for supported IBM racks. Contains eight NEMA 5-15R outlets.
8. An available port on a console switch is required for each Netfinity 4000R.
9. Installation within a rack requires optional Monitor Compartment (P/N 94G7444).
10. Installation within a rack requires optional Netfinity Flat Panel Monitor Rack Mount Kit (P/N 37L6857) and Netfinity Rack Keyboard Tray (P/N 28L4707). A space saver keyboard may coexist within the same 28L4707 keyboard tray.
11. Netfinity 4000R is housed in a 19" rack mountable drawer and requires one of the racks listed here. See IBM Netfinity Rack Cabinet and Options section for IBM rack supported devices. To provide adequate cooling, a blank filler panel should be placed on the front of any unused rack space. If non-IBM racks are to be used, assure that both front and rear doors offer approximately 60% open area uniformly distributed and in line with installed servers. A clearance of 51 to 64-mm (2 to 2-1/2 inches) must be maintained between the front door and the system unit's front bezel. The rear door must maintain the same or greater clearance. Clearance between the EIA mounting rails and rack side covers must be less than 13-mm (1/2-inch) to prevent air re-circulation from back to front. Non-rack installations are not supported.
12. Rack Extension kits 36L9703 and 36L9702 are recommended for 9306900 and 9306200 respectively, to provide sufficient room for cable management.
13. Netfinity 4000R does not include a keyboard or mouse.
14. Installation within a rack requires optional keyboard tray P/N 28L4707 (stows in "ready-to-use" position).
15. Installation within a rack requires optional keyboard tray P/N 28L4707. This keyboard cannot share a keyboard tray with a flat panel display.
16. Advanced TrackPoint IV features are not available on IBM Netfinity systems.
17. Height is 5U. See "Rack and NetBAY" for supported IBM racks
18. Models 8652-11Y, 21Y and 22Y require Console Cable Set P/N 94G7447.

IBM Netfinity 4500R Configurator

Part Number	Processor Speed (MHz)[2]	Number of Processors (Std./Max) L2 ECC Cache (KB)	Memory (Std./Max) (R = RDIMM)	Form Factor	Power Supply Quantity (Std./Max)	Hot-Swap (Power, Slots, HDD, Fans)	Redundancy (Optional, Standard)	Adv. System Management Processor	Onboard Ethernet (Mbps)	SCSI Controller (Dual, Ultra, RAID)	Removable Media Bays (Total/Avail) Internal Hard Disk Drive (Std./Max)	CD-ROM (IDE)[6]	Bays: (Total/Avail) Slots: (Total/Avail)
8656-2RY[1]	667	1/2	256	128 MB(R)/4 GB	Rack (3U)	1/2	P, H, F	O - Power[3] S- Fans	Y	10/100	D,U160	4/2[4]	0/218.4 GB[5]	24X- 10X	8/6[5]	5/5
8656-1RY[1]	733	1/2	256	128 MB(R)/4 GB	Rack(3U)	1/2	P, H, F	O - Power[3] S - Fans	Y	10/100	D,U160	4/2[4]	0/218.4 GB[5]	24X- 10X	8/6[5]	5/5

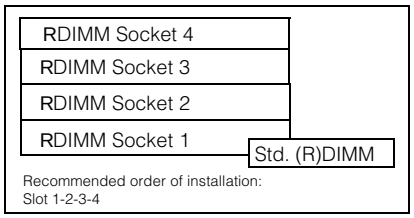
1. Housed in a 19" Rack mountable drawer and ships standard without a keyboard or mouse. See "Rack and NetBAY" under "Netfinity 4500R Power, Monitor & Accessories" for supported IBM racks.
2. Intel Pentium III processor with 133 MHz front-side bus.
3. Power supply redundancy requires installation of optional Netfinity 270 W Hot-Swap Redundant Power Supply (P/N 37L6880).
4. Netfinity 4500R includes two available removable media bays that can be converted to three slim-line (SL) hot-swap bays with the addition of optional 3-Pack Hot-Swap DASD Upgrade (P/N 33L5050), thus doubling internal hard disk drive storage capacity.
5. Assumes insatallation of optional Netfinity 3-Pack Ultra160 Hot-Swap Expansion Kit (P/N 33L5050) which converts the two available removable media bays into three slim-line (SL) hot-swap bays.
6. Variable read rate. Actual playback speed will vary and is often less than the maximum possible.

Netfinity 4500R Processor Upgrades

Part Number	Processor Upgrades with 256 KB Cache (Full Speed)	SMP Support[1]	Processor Speed Upgrade[2]
00N7949	Netfinity 667 MHz 133 FSB/256 KB Upgrade with Pentium III Processor	2RY	-
00N7943	Netfinity 733 MHz 133 FSB/256 KB Upgrade with Pentium III Processor	1RY	2RY

1. One additional processor may be installed, providing a maximum of two. All processors must be identical in type, speed, and cache size.
2. Requires removal of the standard processor. A maximum of two processors may be installed. All processors must be identical in type, speed and cache size. Upgrades may require a BIOS update. To obtain the latest Flash BIOS, access www.ibm.com/pc/support and enter machine "Type-Model" in Quick Path. Select "Downloadable files" and then "BIOS".

Netfinity 4500R Memory



Recommended order of installation:
Slot 1-2-3-4

Part Number	Memory Description[1]
33L3123	Netfinity 128 MB, 133 MHz SDRAM ECC RDIMM II
33L3125	Netfinity 256 MB, 133 MHz SDRAM ECC RDIMM II
33L3127	Netfinity 512 MB, 133 MHz SDRAM ECC RDIMM II
33L3129	Netfinity 1 GB, 133 MHz SDRAM ECC RDIMM II

1. The recommended order of installation is in sequence from Socket 1 to Socket 4. Memory size is not a factor.

Total Memory[1]	Quantity of RDIMMs Added			
128 MB (1 x 128) Models	128 MB (33L3123)	256 MB (33L3125)	512 MB (33L3127)	1 GB (33L3129)
256 MB	1	-	-	-
384 MB	2 or	1	-	-
512 MB	3	-	-	-
640 MB	-	2 or	1	-
896 MB	-	3	-	-
1024 MB	-	4[2]	-	-
1152 MB	-	-	2 or	1
1664 MB	-	-	3	-
2048 MB	-	-	4[2]	-
2176MB	-	-	-	2
3200 MB	-	-	-	3
4096 MB (max)	-	-	-	4[2]

This table does not represent all possible memory configurations. Memory modules may vary in price per MB. Selection of smaller RDIMMs may provide a more cost-effective alternative to using larger RDIMMs.
1. Network Operating Systems may limit the maximum amount of addressable memory. See operating system specifications for further information.
2. Requires removal of standard memory.

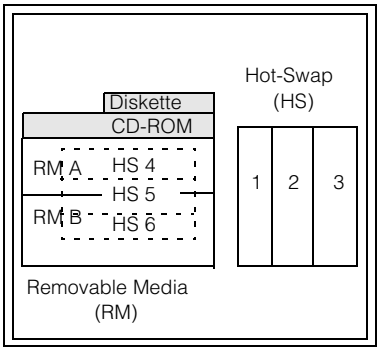
Netfinity 4500R Hard Disk Drive (HDD) Storage

Total Int. Storage[1]	7200RPM Hard Disk Drives (HDDs)			10,000RPM Hard Disk Drives (HDDs)		
	9.1 GB (P/N 36L9744 or P/N 37L7201)[2]	18.2 GB (P/N 36L9745 or P/N 37L7202)[2]	36.4 GB (P/N 37L7203)	9.1 GB (P/N 36L9748 or P/N 37L7204)[2]	18.2 GB (P/N 36L9749 or P/N 37L7205)[2]	36.4 GB (P/N 37L7206)
0 GB	Standard on Base Models			Standard on Base Models		
9.1 GB	1	-	-	1	-	-
18.2 GB	2	1	-	2	1	-
27.3 GB	3	-	-	3	-	-
36.4 GB	4[3]	2	1	4[3]	2	1
45.5 GB	5[3]	-	-	5[3]	-	-
54.6 GB	6[3]	3	-	6[3]	3	-
72.8 GB	-	4[3]	2	-	4[3]	2
91 GB	-	5[3]	-	-	5[3]	-
109.2 GB	-	6[3]	3	-	6[3]	3
145.6GB	-	-	4[3]	-	-	4[3]
182 GB	-	-	5[3]	-	-	5[3]
218.4 GB (max.)	-	-	6[3]	-	-	6[3]

This table does not represent all possible hard drive configurations.
1. Select a total storage row then select the quantity of HDDs from a column corresponding to the hard disk drive of choice. Total Internal Storage listed is within +/- 0.2 GB unless otherwise noted.
2. Mixing Ultra2 and Ultra160 HDDs on a single Ultra160 SCSI channel will result in all HDDs operating at Ultra2 performance levels.
3. Requires Netfinity 3-Pack Ultra 160 Hot-Swap Expansion Kit (P/N 33L5050).

Bay	Form Factor	Height	Front Access	Usage
-	89 mm (3.5")	-	Yes	Diskette
-	133 mm (5.25")	-	Yes	IDE CD-ROM
1...3	HS	SL[1]	Yes	Open
A, B	133 mm (5.25")	HH[2]	Yes	Open
4...6[3]	HS	SL[1]	Yes	Open

1. Half-High devices are NOT supported.
2 Two half-high (HH) bays can be combined to support a single full-high (FH) device. By installing Netfinity 3-Pack Ultra160 Hot-Swap Expansion Kit (P/N 33L5050), bays A and B are transformed into three SL hot-swap bays 4...6.
3. To enable bays 4...6, optional Netfinity 3-Pack Ultra160 Hot-Swap Expansion Kit (P/N 33L5050) is required.



Part Number	Description	RPM	Height	Bays Supported[2]	Max. Qty.
	Ultra2 Hard Disk Drives (HDD)[1]				
36L9744	Netfinity 9.1 GB Wide Ultra2 SCSI Hot-Swap SL HDD	7200	SL	1...6	6[2]
36L9745	Netfinity 18.2 GB Wide Ultra2 SCSI Hot-Swap SL HDD	7200	SL	1...6	6[2]
36L9748	Netfinity 9.1 GB 10K-3 Wide Ultra2 SCSI Hot-Swap SL HDD	10,000	SL	1...6	6[2]
36L9749	Netfinity 18.2 GB 10K-3 Wide Ultra2 SCSI Hot-Swap SL HDD	10,000	SL	1...6	6[2]
	Ultra160 Hard Disk Drives (HDD)[1]				
37L7201	Netfinity 9.1 GB Ultra160 SCSI Hot-Swap SL HDD	7200	SL	1...6	6[2]
37L7202	Netfinity 18.2 GB Ultra160 SCSI Hot-Swap SL HDD	7200	SL	1...6	6[2]
37L7203	Netfinity 36.4 GB Ultra160 SCSI Hot-Swap SL HDD[8]	7200	SL	1...6	6[2]
37L7204	Netfinity 9.1 GB 10-K Ultra160 SCSI Hot-Swap SL HDD[9]	10,000	SL	1...6	6[2]
37L7205	Netfinity 18.2 GB 10-K Ultra160 SCSI Hot-Swap SL HDD[9]	10,000	SL	1...6	6[2]
37L7206	Netfinity 36.4 GB 10-K Ultra160 SCSI Hot-Swap SL HDD[9]	10,000	SL	1...6	6[2]
	Associated Options				
33L5050	Netfinity 3-Pack Ultra160 Hot-Swap Expansion Kit[3]	-	3 x SL	4...6	-

	External Storage Expansion Units[4]	**Form Factor**
35301RU	Netfinity EXP200 Storage Expansion Unit[5]	Rack (3U)
35311RU	Netfinity EXP300 Storage Expansion Unit[6, 9]	Rack (3U)
35601RU	Netfinity FAStT EXP500 Storage Expansion Unit[7]	Rack (3U)
37L0075	Netfinity EXP200 350 W Redundant Power Supply	-

1. Mixing Ultra2 and Ultra160 HDDs on a single Ultra160 SCSI channel will result in all HDDs operating at Ultra2 bus speeds.
2. Netfinity 4500R ships with Bays 1...3 enabled. To enable installation of greater than three HDDS requires Netfinity 3-Pack Ultra160 Hot-Swap Expansion Kit (P/N 33L5050).
3. Netfinity 3-Pack Ultra160 Hot-Swap Expansion Kit (P/N 33L5050) includes a hot-swap backplane and associated components for two cabling options. The backplane may be cabled directly to the second integrated SCSI channel or be supported by the same SCSI channel as the standard backplane through the use of an included repeater card.
4. Select an optional SCSI controller and then refer to Appendix D: Cables-Storage Units-Controllers to confirm the controller supports the desired External Storage Expansion Unit and to select a supported cable. For HDD or other expansion unit options, see the specific expansion unit section.
5. Netfinity EXP200 includes a single 2 M Ultra2 SCSI cable and single hot-swap 350W power supply and power cord. Optional hot-swap Netfinity EXP200 350W Redundant Power Supply (P/N 37L0075) includes an additional power cord.
6. Netfinity EXP300 includes a single 2 M Ultra2 SCSI cable and dual hot-swap 500W redundant power supplies, each with its own power cord.
7. Netfinity FAStT EXP500 Storage Expansion Unit (P/N 35601RU) includes dual hot-swap 350W power supplies, each with its own power cord.
8. Planned availability of June 1, 2000.
9. Planned availablilty of June 30, 2000.

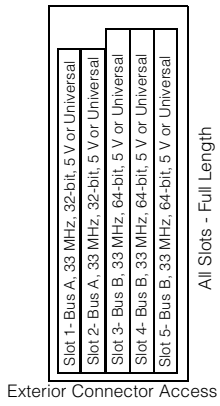
Netfinity 4500R Internal SCSI Cabling

Netfinity 4500R contains a DASD backplane supporting three hot-swap, SCA-2 compliant drive bays. The backplane is connected to one of the internal connectors of the integrated Ultra160 SCSI controller through a 16-bit LVD SCSI cable. A single-drop 16-bit SCSI cable is included with the server for attachment from the second internal Ultra160 connector to a removable media bay device. If an LVD attachment is required or more than one media bay device is required, a terminated two-drop 16-bit LVD SCSI cable available in the Netfinity Media Bay Conversion Kit (P/N 10K2340) must be ordered. No external SCSI port is included.

If optional Netfinity 3-Pack Ultra160 Hot-Swap Expansion Kit (P/N 33L5050) is installed in the removable media bays, four cabling options are possible. Included with this option is a 16-bit LVD SCSI cable, identical to the one used for attachment of the standard hot-swap backplane, which can be used to attach the optional 3-Pack Ultra160 Hot-Swap backplane directly to the second onboard SCSI connector or that of an optional RAID adapter. Alternatively, a repeater card and cable are included which may be used to link the standard hot-swap backplane and optional hot-swap backplane together while utilizing the standard SCSI cable for attachment of the repeater card to one of the onboard SCSI connectors or that of an optional RAID adapter.

Netfinity 4500R I/O Options

Part Number	Description	Adapter Length	PCI Support	Slots Supported
	Storage Controllers[1]			
19K0564	Netfinity ServeRAID-3L Ultra2 SCSI Adapter II[2]	Full	32-bit	1...5
37L6086	Netfinity ServeRAID-3HB Ultra2 SCSI Adapter[3]	Full	32/64-bit	1...5
37L6091	Netfinity ServeRAID-4L Ultra160 SCSI Controller[4, 12]	Full	32/64-bit	1...5
37L6080	Netfinity ServeRAID-4M Ultra160 SCSI Controller[5, 12]	Full	32/64-bit	1...5
02K3454	PCI Fast/Wide Ultra SCSI Adapter	Half	32-bit	1...5
	Fibre Storage Controllers and Options[6]			
01K7297	Netfinity Fibre Channel PCI Adapter	Half	32/64-bit	1...5
35261RU	Netfinity Fibre Channel RAID Controller Unit	-	-	-
01K7296	Netfinity Fibre Channel Failsafe RAID Controller	-	-	-
00N6881	Netfinity FAStT Host Adapter	Half	32/64-bit	1...5
35521RU	Netfinity FAStT500 RAID Controller	-	-	-
2109S08	SAN Fibre Channel Switch, 8-Port	-	-	-
2109S16	SAN Fibre Channel Switch, 16-Port	-	-	-
	Networking[7]			
	Ethernet			
34L1501	Netfinity 10/100 Ethernet PCI Adapter 2	Half	32-bit	1...5
34L0301	Netfinity Gigabit Ethernet SX Adapter	Half	32/64-bit	1...5
	Token Ring			
34L0501	Token-Ring 100/16/4 High-Speed PCI Adapter	Half	32-bit	1...5
34L0601	Token-Ring 16/4 PCI Adapter 2	Half	32-bit	1...5
	Communications[8]			
33L4618	PCI V.90 56 Data/Fax Modem[9]	Half	32-bit	1...5
	Systems Management[10]			
03K9309	Netfinity Advanced System Management Interconnect Cable Kit[11]	-	-	-


Slot 1- Bus A, 33 MHz, 32-bit, 5 V or Universal
Slot 2- Bus A, 33 MHz, 32-bit, 5 V or Universal
Slot 3- Bus B, 33 MHz, 64-bit, 5 V or Universal
Slot 4- Bus B, 33 MHz, 64-bit, 5 V or Universal
Slot 5- Bus B, 33 MHz, 64-bit, 5 V or Universal
All Slots - Full Length
Exterior Connector Access

1. Netfinity 4500R includes a dual-port, dual-channel Ultra160 SCSI controller for internal use only. No standard external port is available. See "Internal SCSI Cabling" for cabling alternatives.
2. Netfinity ServeRAID-3L Ultra2 SCSI Adapter II (P/N 19K0564) provides either one internal or one external (0.8-mm VHDCI) LVDS SCSI channel.
3. Netfinity ServeRAID-3HB Ultra2 SCSI Adapter (P/N 37L6086) provides 2 external (0.8-mm VHDCI) LVDS SCSI channels. The internal connector is not accessible due to a cabling interference. Includes 32 MB of mirrored battery-backup cache which helps protect against data loss in write-back cache mode in the event of a power outage or adapter maintenance.
4. Netfinity ServeRAID-4L Ultra160 SCSI Controller is powered by a 100 MHz Intel i960 processor and provides a single channel, 16 MB of ECC cache and either one internal or one external Ultra160 connection. External connector is 0.8-mm VHDCI.
5. Netfinity ServeRAID-4M Ultra160 SCSI Controller is powered by a 100 MHz Intel i960 processor and provides two channels, 64 MB of battery-backed ECC cache and two external 0.8-mm VHDCI Ultra160 connectors. The internal connectors are not accessable due to cabling interference.
6. See Netfinity Fibre Array Solutions section for additional configuration information.
7. Netfinity 4500R includes a full-duplex, 10/100 Mbps Ethernet PCI controller.
8. Netfinity 4500R includes two USB ports, two serial and one parallel port.
9. Due to homologation variances, modem availability may differ by country.
10. The Netfinity Advanced Systems Management Processor and Interconnect Bus integrated into Netfinity 4500R works with Netfinity Manager to provide significant system management function. When used with Netfinity Advanced System Management Interconnect Cable Kit (P/N 03K9309) additional management and control of up to 12 service processors from a remote console through a single modem or LAN connection is possible.
11. Required for all Netfinity servers containing a standard Advanced System Management Processor that are to be interconnected for system management support through a LAN or modem connection (Netfinity 5500 models 8660- 1...4xU are not supported). Up to 12 processors may be interconnected (including standard and optional processors) with an aggregate connection length of no more than 91.4 meters (300 ft.). A customer-supplied Ethernet cable is required for each interconnection.
12. Planned availability of June 30, 2000.

Netfinity 4500R Power, Monitor & Accessories

Part Number	Description
	Power[1]
37L6880	Netfinity 270 W Hot-Swap Redundant Power Supply
	Uninterruptable Power Supply (UPS)[2]
94G6674	APC Smart-UPS 1400RMB[3]
94G6676	APC Smart-UPS 3000RMB[3]
37L6861	APC Smart-UPS 5000RMB[4]
	Monitors[5]
6331B2N	E54 Color Monitor 15" (350-mm, 13.8" Viewable Image Size), stealth black[6]
6332J1N	E74 Color Monitor 17" (403-mm, 15.9" Viewable Image Size), stealth black[6]
654841N	G76 Color Monitor 17" (406-mm, 16" Viewable Image Size), stealth black[6]
65494AN	G96 Color Monitor 19" (454-mm, 17.9" Viewable Image Size), stealth black[8]
9513AG1	T55A Flat Panel Color Monitor (381-mm), stealth black[7]
9519AG1	T85A Flat Panel Color Monitor (459-mm, 18.1" Viewable Image Size), stealth black[8]

1. Netfinity 4500R systems include a single 270 W, hot-swap power supply and a single 9 ft. 110 V power cord with an IEC 320-C13 connector on the system end and NEMA 5-15P on the other end. Power supply redundancy may be achieved with the addition of optional Netfinity 270 W Hot-Swap Redundant Supply (P/N 37L6880).
2. For runtimes and UPS attributes see Appendix C: UPS Runtime Estimate.
3. Height is 3U. See "Rack and NetBAY" for supported IBM racks.
4. Height is 5U. See "Rack and NetBAY" for supported IBM racks.
5. Netfinity 4500R uses an SVGA controller (S3 Savage4 chipset) with 8 MB of video memory.
6. Installation within a rack requires optional Monitor Compartment (P/N 94G7444).
7. Installation within a rack requires optional Netfinity Flat Panel Monitor Rack Mount Kit (P/N 37L6857) and Netfinity Rack Keyboard Tray (P/N 28L4707). A space saver keyboard may coexist within the same 28L4707 keyboard tray.
8. Not supported for installation in a 19" rack.

Part Number	Description
	Rack and NetBAY[1]
930842P	Netfinity Enterprise Rack
930842X	Netfinity Enterprise Expansion Cabinet
9306900	Netfinity Rack
9306200	Netfinity NetBAY22
	Keyboard and Mouse[2]
28L3644	Space Saver II Keyboard[3, 5]
01K1260	TrackPoint IV 104-Key Black Keyboard[4, 5]
28L3621	Preferred Keyboard (stealth black)[4]
28L3673	Sleek 2-Button Stealth Black Mouse

1. Netfinity 4500R is housed in a 19" rack mountable drawer and requires one of the racks listed here. See IBM Netfinity Rack Cabinet and Options section for IBM rack supported devices.
2. Netfinity 4500R ships without a keyboard or mouse.
3. Installation within a rack requires optional keyboard tray P/N 28L4707 (stows in "ready-to-use" position).
4. Installation within a rack requires optional keyboard tray P/N 28L4707. This keyboard cannot share a keyboard tray with a flat panel display.
5. Advanced TrackPoint IV features are not available on IBM Netfinity systems.

Netfinity 4500R Tape Options

Part Number	Description	Bays Supported	SCSI Interface (bit)	Form Factor	Termination Included	68/50-pin Converter Incl.	Ext. Tape Enclosures
00N7991	20/40 GB DDS/4 4-mm Internal Tape Drive	A, B[1]	16 Ultra2 LVD	89 mm (3.5") HH or 133 mm (5.25") HH	Y[2]	N	-
01K1325	20/40 GB 8-mm Internal SCSI Tape Drive	A, B[1]	16	133 mm (5.25") HH	N[3]	N	-
01K1320	20/40 GB DLT Internal SCSI Tape Drive	A/B	8	133 mm (5.25") FH	Y[2]	Y	-
00N7990	40/80 GB DLT Internal SCSI Tape Drive	A/B	16 Ultra2 LVD	133 mm (5.25") FH	N[3]	N	-
	Associated Options						
10K2340	Netfinity Media Bay Conversion Kit[4]						

1. Netfinity 4500R includes a single drop, 16-bit, non-terminated SCSI cable for attachment of a device in Bay A or B to the second integrated Ultra160 SCSI channel or supported adapter. The 16-bit LVD, two-drop, terminated SCSI cable included with optional Netfinity Media Bay Conversion Kit (P/N 10K2340) is required for any of the following configurations.
- Two removable media devices are to be installed.
- Support for Ultra2 or Ultra160 mode is desired. (Dependent on device support)
- Support for devices which do not include termination.

2. Tape drive is capable of self termination.
3. Installation in system unit's removable media bays requires the terminated, two-drop, 16-bit, LVD SCSI cable included with optional Netfinity Media Bay Conversion Kit (P/N 10K2340).
4. Contains a terminated, two-drop, 16-bit, LVD SCSI cable for attachment from an onboard SCSI controller or supported adapter to devices installed in the removable media bays. Netfinity 4500R does not require installation of the remaining contents of this option.

Note: SCSI support for tape drives is provided by system unit onboard (standard) controller or PCI Fast Wide Ultra SCSI Adapter (P/N 02K3454).

Netfinity 4500R Sample Configurations

Note: The following sample configurations are for illustration only and may not be suitable for any specific customer installation. Contact your IBM Business Partner or IBM Marketing Representative for assistance with your specific configuration requirements.

Internet Server

Part Number	Description	Quantity
8656-2RY	Netfinity 4500R Pentium III 667 MHz/256 KB L2, 128 MB(R) ECC, OPEN, 32X, PCI/ISA (Rack 3U)	1
33L3123	Netfinity 128 MB SDRAM ECC RDIMM II[1]	1
37L6086	Netfinity ServeRAID-3HB Ultra2 SCSI Adapter	1
37L7201	Netfinity 9.1 GB Ultra160 SCSI Hot-Swap SL HDD[2]	3
01K1325	20/40 GB 8-mm Internal SCSI Tape Drive	1
10K2340	Netfinity Media Bay Conversion Kit	1
6331B2N	E54 Color Monitor 15" (350-mm, 13.8" Viewable Image Size), stealth black	1
94G6674	APC Smart-UPS 1400RMB	1
	Industry Standard 19" Rack, EIA-310D, min. depth of 28" (711 mm)	
9306200	Netfinity NetBAY22	1
28L3644	Space Saver II Keyboard	1
94G6670	Blank Filler Kit	2

1. For a total of 256 MB of system memory.
2. For a total of 27.3 GB of RAID protected hot-swap, hot-spare internal storage.

An internet server is a server that handles all requests from the Internet (intranet or extranet). Usually this type of server has the same characteristics as a file server. The main difference is that an internet server talks a different language (TCP/IP vs. NETBEUI or IPX/SPX) and often needs to do an extra security check (Firewall). In the case of an internet server, the server itself talks mostly to just one client, the Internet Service Provider (ISP), instead of many clients like a file server does.

With this in mind the IBM Netfinity 4500R was selected to provide an affordable price point for the growing internet server market, 256 MB of system memory (expandable to 4 GB), and availability features such as RAID protected internal hot-swap storage and power protection with an APC Smart-UPS.

The network configuration depends on the method that will be used to connect the server to the internet. Usually fast Ethernet routers are used, but if other methods are used, you can add the appropriate adapter. The configuration includes a tape backup unit for secure backup of critical data in the event of a system or storage failure.

Application Server

Part Number	Description	Quantity
8656-1RY	Netfinity 4500R Pentium III 733 MHz/256 KB L2, 128 MB ECC, OPEN, 24X, PCI/ISA (Rack 3U)	1
00N7943	Netfinity 733 MHz 133 FSB/256 KB Upgrade with Pentium III Processor	1
33L3125	Netfinity 256 MB 133 MHz SDRAM ECC RDIMM II	1
37L7202	Netfinity 18.2 GB Ultra160 SCSI Hot-Swap SL HDD	3
01K1325	20/40 GB 8-mm Internal SCSI Tape Drive	1
10K2340	Netfinity Media Bay Conversion Kit	1
6331B2N	E54 Color Monitor 15" (350-mm, 13.8" Viewable Image Size), stealth black	1
37L6880	Netfinity 270 W Hot-Swap Redundant Power Supply	1
94G6674	APC Smart-UPS 1400RMB	1
	Industry Standard 19" Rack, EIA-310D, min. depth of 28" (711 mm)	
9306200	Netfinity NetBAY22	1
28L3644	Space Saver II Keyboard	1
94G6670	Blank Filler Kit	2

1. For a total of 384 MB of system memory.
2. For a total of 54.6 GB of usable RAID 5 storage.

An application server is designed to handle a high workload while providing application serving requirements for users. With this in mind, the IBM Netfinity 4500R was selected to provide an affordable price point for an application server, with two-way Pentium III processing, 384 MB of system memory (expandable to 4 GB), and availability features such as battery-backed cache, RAID protected internal hot-swap storage and power protection with an APC Smart-UPS.

IBM Netfinity 5000 Configurator

Part Number	Withdrawal Date (mmddyy)[6]	Processor Speed (MHz)	Number of Processors (Std/Max)	L2 ECC Cache (KB)	Memory(Std/Max) (R = RDIMM)	Form Factor	Power Supply Quantity (Std/Max)	Hot-Swap (Power, Slots, HDD, Fans)	Redundancy (Optional, Standard)	Adv. System Management Processor	Onboard Ethernet (Mbps)	SCSI Controller (Dual, Ultra, RAID)	Removable Media Bays (Total/Avail)	Internal Hard Disk Drive (Std/Max)	CD-ROM (IDE)	Bays: (Total/Avail)	Slots: (Total/Avail)
8659-41Y	042800	500[4]	1/2	512	128 MB[R]/2 GB	Tower	1/2	H	S-Power[2]	Y	10/100	D,U	3/1	0/91 GB	32X- 14X[3]	8/6	5/5
8659-4RY[1]	042800	500[4]	1/2	512	128 MB[R]/2 GB	Rack(5U)	1/2	H	S-Power[2]	Y	10/100	D,U	3/1	0/91 GB	32X- 14X[3]	8/6	5/5
8659-51Y	042800	550[4]	1/2	512	128 MB[R]/2 GB	Tower	1/2	H	S-Power[2]	Y	10/100	D,U	3/1	0/91 GB	32X- 14X[3]	8/6	5/5
8659-5RY[1]	042800	550[4]	1/2	512	128 MB[R]/2 GB	Rack(5U)	1/2	H	S-Power[2]	Y	10/100	D,U	3/1	0/91 GB	32X- 14X[3]	8/6	5/5
8659-61Y	-	600[4]	1/2	512	128 MB[R]/2 GB	Tower	1/2	H	S-Power[2]	Y	10/100	D,U	3/1	0/91 GB	32X- 14X[3]	8/6	5/5
8659-6RY[1]	-	600[4]	1/2	512	128 MB[R]/2 GB	Rack(5U)	1/2	H	S-Power[2]	Y	10/100	D,U	3/1	0/91 GB	32X- 14X[3]	8/6	5/5
8659-71Y	-	650[5]	1/2	256	128 MB[R]/2 GB	Tower	1/2	H	S-Power[2]	Y	10/100	D,U	3/1	0/91 GB	32X- 14X[3]	8/6	5/5
8659-7RY[1]	-	650[5]	1/2	256	128 MB[R]/2 GB	Rack(5U)	1/2	H	S-Power[2]	Y	10/100	D,U	3/1	0/91 GB	32X- 14X[3]	8/6	5/5
8659-81Y	-	700[5]	1/2	256	128 MB[R]/2 GB	Tower	1/2	H	S-Power[2]	Y	10/100	D,U	3/1	0/91 GB	32X- 14X[3]	8/6	5/5
8659-8RY[1]	-	700[5]	1/2	256	128 MB[R]/2 GB	Rack(5U)	1/2	H	S-Power[2]	Y	10/100	D,U	3/1	0/91 GB	32X- 14X[3]	8/6	5/5

1. Housed in a 19" Rack mountable drawer and ships standard without a keyboard or mouse. See "Rack and NetBAY" under "Netfinity 5000 Power, Monitor & Accessories" for supported IBM racks.
2. Robust configurations may require optional Netfinity 175W Redundant Power Supply (P/N 10L7007) for redundancy. See the Netfinity 5000 Power Supply Redundancy Requirements table for additional information.
3. Variable read rate. Actual playback speed will vary and is often less than the maximum possible.
4. Intel Pentium III processor.
5. Intel Pentium III processor with advanced transfer (full speed) L2 cache.
6. Not available from IBM after this date. Business Partner inventory may be available.

Netfinity 5000 Processor Upgrades

Part Number	Processor Upgrades with 512 KB Cache or 256 KB Advanced Transfer Cache	SMP Support[1]	Processor Speed Upgrade[2]
10L5883	Netfinity 350/100 MHz, 512 KB Processor Upgrade with Pentium II Processor	All 1xY	-
10L5884	Netfinity 400/100 MHz, 512 KB Processor Upgrade	All 2xY	All 1xY
10L5900	Netfinity 450/100 MHz, 512 KB Processor Upgrade with Pentium II Processor	All 3xY	All 1...2xY
36L9673	Netfinity 500 MHz/512 KB Upgrade with Pentium III Processor	All 4xY	All 1...3xY
33L5112	Netfinity 550 MHz/512 KB Upgrade with Pentium III Processor	All 5xY	All 1...4xY
33L5106	Netfinity 600 MHz/512 KB Upgrade with Pentium III Processor	All 6xY	-
10K2164	Netfinity 650 MHz/256 KB Upgrade with Pentium III Processor	All 7xY	-
10K2165	Netfinity 700 MHz/256 KB Upgrade with Pentium III Processor	All 8xY	All 7xY

1. One additional processor may be installed, providing a maximum of two. All processors must be identical in type, speed, and cache size.
2. Requires removal of the standard processor. A maximum of two processors may be installed. All processors must be identical in type, speed and cache size. Upgrades may require a BIOS update. To obtain the latest Flash BIOS, access www.ibm.com/pc/support and enter machine "Type-Model" in Quick Path. Select "Downloadable files" and then "BIOS".

Netfinity 5000 Memory

RDIMM Socket - J15	Std. RDIMM
RDIMM Socket - J16	
RDIMM Socket - J17	
RDIMM Socket - J22	

Part Number	Memory Description
01K7241	Netfinity 64 MB SDRAM ECC RDIMM
01K7262	Netfinity 128 MB SDRAM ECC RDIMM
01K8043	Netfinity 256 MB SDRAM ECC RDIMM
01K7263	Netfinity 512 MB SDRAM ECC RDIMM

Total Memory[1]	Models 1...3xY	Model 4...6xY
64 MB	64 MB RDIMM Standard	-
128 MB	1 x 01K7241	128 MB RDIMM Standard
192 MB	1 x 01K7262	1 x 01K7241
256 MB	1 x 01K7262, 1 x 01K7241	1 x 01K7262
320 MB	1 x 01K8043	1 x 01K7262, 1 x 01K7241
384 MB	1 x 01K8043, 1 x 01K7241	1 x 01K8043
512 MB	1 x 01K8043, 1 x 01K7262, 1 x 01K7241	1 x 01K8043, 1 x 01K7262
576 MB	1 x 01K7263	-
640 MB	1 x 01K7263, 1 x 01K7241	1 x 01K7263
1088 MB	2 x 01K7263	-
1152 MB	2 x 01K7263, 1 x 01K7241	2 x 01K7263
1600 MB	3 x 01K7263	-
1664 MB	-	3 x 01K7263
2048 MB (max)	4 x 01K7263[2]	4 x 01K7263[2]

This table does not represent all possible memory configurations.
1. Network Operating Systems may limit the maximum amount of addressable memory. See operating system specifications for further information.
2. Replace standard RDIMM.

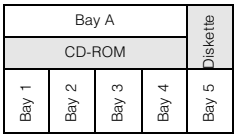
Netfinity 5000 Hard Disk Drive (HDD) Storage

Total Int. Storage[1]	7200RPM Hard Disk Drives (HDDs)			10,000RPM Hard Disk Drives (HDDs)		
	9.1 GB	18.2 GB	36.4 GB	9.1 GB	18.2 GB	36.4 GB
0 GB	Standard on Base Models			Standard on Base Models		
9.1 GB	1 x 01K8053	-	-	1 x 36L9806	-	-
18.2 GB	2 x 01K8053 or	1 x 02K0440	-	2 x36L9806 or	1 x36L9807	-
27.2 GB	3 x 01K8053	-	-	3 x 36L9806	-	-
36.4 GB	4 x 01K8053 or	2 x 02K0440 or	1 x 02K0441	4 x36L9806 or	2 x 36L9807 or	1 x 36L9808
45.5 GB	5 x 01K8053	-	-	5 x 36L9806	-	-
54.6 GB	-	3 x 02K0440	-	-	3 x 36L9807	-
72.8 GB	-	4 x 02K0440 or	2 x 02K0441	-	4 x 36L9807 or	2 x 36L9808
91 GB (max)	-	5 x 02K0440	-	-	5 x 36L9807	

This table does not represent all possible hard drive configurations.
1. Total Internal Storage listed is within ± 0.2 GB unless otherwise noted.

Bay	Form Factor	Height	Front Access	Usage
A	133 mm (5.25")	HH[1]	Yes	Open[2]
B	133 mm (5.25")	HH[1]	Yes	IDE CD-ROM
C	89 mm (3.5")	SL	Yes	Diskette
1...5	HS[1]	SL[3]	Yes	Open

1. Definitions: Half High (HH), Slim-Line (SL), Hot-Swap (HS)
2. Removable Media (RM) devices only.
3. Two slim-line (SL) can be combined to support a single half-high device.



Part Number	Description	RPM	Height	Bays Supported	Max. Qty.
	Internal Hard Disk Drives (HDD)				
01K8053	Netfinity 9.1 GB Wide Ultra SCSI SCA-2 SL HDD	7200	SL	1...5	5
02K0440	Netfinity 18.2 GB Wide Ultra SCSI Hot-Swap SL HDD	7200	SL	1...5	5
02K0441	Netfinity 36.4 GB Wide Ultra SCSI Hot-Swap HDD	7200	HH[1]	1/2, 2/3, 3/4, 4/5	2
36L9806	Netfinity 9.1 GB 10K-3 Wide Ultra SCSI Hot-Swap SL HDD	10,000	SL	1...5	5
36L9807	Netfinity 18.2 GB 10K-3 Wide Ultra SCSI Hot-Swap SL HDD	10,000	SL	1...5	5
36L9808	Netfinity 36.4 GB 10K-3 Wide Ultra SCSI Hot-Swap HDD	10,000	HH[1]	1/2, 2/3, 3/4, 4/5	2

	External Storage Expansion Units[2]	Form Factor
35202RU	Netfinity EXP15 Storage Expansion Unit	Rack (3U)
35301RU	Netfinity EXP200 Storage Expansion Unit[3]	Rack (3U)
37L5857	Netfinity EXP200 Rack-to-Tower Conversion Kit	Tower
37L0075	Netfinity EXP200 350 W Redundant Power Supply	-
35311RU	Netfinity EXP300 Storage Expansion Unit[4, 6]	Rack (3U)
09N7296	Netfinity EXP300 Rack-to-Tower Conversion Kit[6]	-
35601RU	Netfinity FAStT EXP500 Storage Expansion Unit[5]	Rack (3U)

1. Two slim-line (SL) bays can be combined to support a single half-high (HH) device.
2. Not supported by the onboard external SCSI port. Select an optional SCSI controller then refer to see Appendix D: Cables-Storage Units-Controllers to confirm the controller supports the desired External Storage Expansion Unit and to select a supported cable. For HDD or other expansion unit options, see the specific expansion unit section.
3. Netfinity EXP200 includes a single 2 M Ultra2 SCSI cable and a single hot-swap 350 W power supply and power cord. Optional hot-swap Netfinity EXP200 350 W Redundant Power Supply (P/N 37L0075) includes an additional power cord. To convert an EXP200 to a tower form factor, Netfinity EXP200 Rack-to-Tower Conversion Kit (P/N 37L5857) is required.
4. Netfinity EXP300 includes a single 2 M Ultra2 SCSI cable and dual hot-swap 500 W power supplies, each with its own power cord. To convert an EXP300 to a tower form factor, Netfinity EXP300 Rack-to-Tower Conversion Kit (P/N 09N7296) is required.
5. Netfinity FAStT EXP500 Storage Expansion Unit (P/N 35601RU) includes dual hot-swap 350 W power supplies, each with its own power cord.
6. Planned availabilty of June 30, 2000.

Internal SCSI Cabling

Netfinity 5000 systems contain a backplane supporting five hot-swap drive bays. The backplane has an integrated SCSI terminator and is connected to one of the two integrated dual-channel SCSI controller connectors by a two drop 16-bit SCSI cable. The second drop is available for supporting an internal removable media device. In the event the standard two drop cable is attached to a RAID controller and a dedicated removable media attachment to the onboard controller is required, an optional, terminated, 16-bit cable is available (Netfinity Two-Drop Internal SCSI Cable P/N 36L9636). The second SCSI channel is available for external device attachment through a rear panel 68-pin high density connector.

Netfinity 5000 I/O Options

Part Number	Description	Adapter Length	PCI Support	Slots Supported
	Storage Controllers[1]			
01K7364	Netfinity ServeRAID-3L Ultra2 SCSI Adapter[2]	Full	32-bit	1...5
37L6086	Netfinity ServeRAID-3HB Ultra2 SCSI Adapter[3]	Full	32/64-bit	2...5[4]
02K3454	PCI Fast/Wide Ultra SCSI Adapter	Half	32-bit	1...5
09L2123	Advanced SerialRAID/X Adapter[5]	Full	32-bit	1...5[6]
	Fibre Storage Controllers and Options[7]			
01K7297	Netfinity Fibre Channel PCI Adapter	Half	32/64-bit	2...5[4]
35261RU	Netfinity Fibre Channel RAID Controller Unit	-	-	-
01K7296	Netfinity Fibre Channel Failsafe RAID Controller	-	-	-
35231RU	Netfinity Fibre Channel Hub	-	-	-
00N6881	Netfinity FAStT Host Adapter	Half	32/64-bit	2...5[4]
35521RU	Netfinity FAStT500 RAID Controller	-	-	-
2109S08	SAN Fibre Channel Switch, 8-Port	-	-	-
2109S16	SAN Fibre Channel Switch, 16-Port	-	-	-
	Networking[8]			
	Ethernet			
34L1501	Netfinity 10/100 Ethernet PCI Adapter 2	Half	32-bit	1...5
08L3341	Netfinity 10/100 Fault Tolerant Adapter	Half	32-bit	1...5
09N9901	10/100 EtherLink Server Adapter by 3Com	Half	32-bit	1...5
34L0301	Netfinity Gigabit Ethernet SX Adapter	Half	32/64-bit	2...5[4]
	Token Ring			
34L0501	Token-Ring 100/16/4 High-Speed PCI Adapter	Half	32-bit	1...5
34L0601	Token-Ring 16/4 PCI Adapter 2	Half	32-bit	1...5
	Communications			
33L4618	PCI V.90 56 Data/Fax Modem[9]	Half	32-bit	1, 2, 3
37L14xx	Serial I/O SST 8, 16 and 128 Port Adapters[10]	Half	32-bit	1...5[10]
	Systems Management[11]			
01K7209	Netfinity Advanced System Management PCI Adapter[12]	Full	32-bit	1...5[13]
03K9309	Netfinity Advanced System Management Interconnect Cable Kit[14]	-	-	-
36L9654	Netfinity Advanced System Management Token-RIng Connection[15]	-	-	-
	Host Attach			
9086001	Netfinity ESCON Adapter[16]	Full	32-bit	1...5[17]

Slot 5- PCI, 32-bit, Full Length	Slot 4- PCI, 32-bit, Full Length	Slot 3- PCI, 32-bit, Full Length	Slot 2- PCI/ISA, Full Length	Slot 1- PCI/ISA, Full Length

1. Netfinity 5000 has two integrated Wide Ultra SCSI channels. One is internal and the other is external with a 68-pin High Density connector.
2. Netfinity ServeRAID-3L Ultra2 SCSI Adapter (P/N 01K7364) provides either one internal or one external (0.8-mm VHDCI) LVDS SCSI channel.
3. Netfinity ServeRAID-3HB Ultra2 SCSI Adapter (P/N 37L6086) provides one internal and 2 external (0.8-mm VHDCI) LVDS SCSI channels. The internal channel can be configured for external usage (0.8-mm VHDCI) providing a total of 3 external LVDS SCSI channels. Includes 32MB of mirrored battery-backup cache which helps protect against data loss in write-back cache mode in the event of a power outage or adapter maintenance.
4. 64-bit adapters will not fit in slot 1.
5. Requires system BIOS level of 7.0 or higher which can be found on BIOS Flash Update Diskette version 1.04 or higher. To obtain the latest Flash BIOS, access www.ibm.com/pc/support and enter machine "Type-Model" in Quick Path. Select "Downloadable files" then "BIOS".
6. A maximum quantity of four is supported.
7. See Netfinity Fibre Array Solutions section for additional configuration information.
8. Netfinity 5000 has an integrated 10/100 PCI Ethernet Controller.
9. Due to homologation variances, modem availability may differ by country.
10. See Appendix E for details on Serial I/O options and configuration limitations. A maximum of four Serial I/O adapters (any combination of P/N 37L1414, 37L1415, 37L1416, 37L1423) may be installed.
11. The Netfinity Advanced Systems Management Processor and Interconnect Bus integrated into Netfinity 5000 works with Netfinity Manager to provide significant system management function. When used with optional Netfinity Advanced System Management PCI Adapter (P/N 01K7209) and Netfinity Advanced System Management Interconnect Cable Kit (P/N 03K9309) additional management and control of up to 12 service processors from a remote console through a single modem or LAN connection is possible.
12. Includes PCI adapter, Netfinity Advanced System Management Interconnect Cable Kit components and 56-watt AC adapter which requires a separate power source. Provides an integrated 10/100 Ethernet port and PCMCIA slot to support optional Netfinity Advanced System Management Token-Ring Connection (P/N 36L9654).
13. A maximum quantity of one is supported.
14. Required for all Netfinity servers containing a standard Advanced System Management Processor that are to be interconnected for system management support through a LAN or modem connection (Netfinity 5500 models 8660- 1...4xU are not supported). Optional Netfinity Advanced System Management PCI Adapter (P/N 01K7209) includes the content of this option. Up to 12 service processors may be interconnected (including standard and optional processors) with an aggregate connection length of no more than 91.4 meters (300 ft.). A customer-supplied Ethernet cable is required for each interconneciton.
15. Contains an IBM Turbo 16/4 Token-Ring PCI Card, which installs in the PCMCIA card slot of Netfinity Advanced System Management PCI Adapter (P/N 01K7209), and a PC Card to 9-pin D-Shell cable which is routed to a rear chassis cut-out. The Netfinity Advanced System Management PCI Adapter integrated Ethernet port and Netfinity Advanced System Management Token-Ring Connection cannot be connected or used together.
16. Provides an ESCON MIC and DB9 Serial Port. Cables are not included but are available through S/390 channels. Contact your IBM representative for additional information.
17. A maximum of two 9086001 adapters (installed in non-adjacent slots) are supported in a single Netfinity server.

Netfinity 5000 Power, Monitor & Accessories

Part Number	Description
	Power[1]
10L7007	Netfinity 175 W Redundant Power Supply
	Uninterruptable Power Supply (UPS)[2]
94G3135	APC Smart-UPS 1000
94G3136	APC Smart-UPS 1400
94G6674	APC Smart-UPS 1400 RMB[3]
94G6676	APC Smart-UPS 3000 RMB[3]
37L6861	APC Smart-UPS 5000 RMB[7]
	Monitors
65464AN	G54 Color Monitor 15" (348-mm, 13.7" Viewable Image Size), stealth black[4]
65474AN	G74 Color Monitor 17" (403-mm, 15.9" Viewable Image Size), stealth black[4]
6331B2N	E54 Color Monitor 15" (350-mm, 13.8" Viewable Image Size), stealth black[4]
6332J1N	E74 Color Monitor 17" (403-mm, 15.9" Viewable Image Size), stealth black[4]
654841N	G76 Color Monitor 17" (406-mm, 16" Viewable Image Size), stealth black[4]
65494AN	G96 Color Monitor 19" (454-mm, 17.9" Viewable Image Size), stealth black[5]
9513AG1	T55A Flat Panel Color Monitor (381-mm, 15.0" Viewable Image Size), stealth black[6]
9519AG1	T85A Flat Panel Color Monitor (459-mm, 18.1" Viewable Image Size), stealth black[5]

1. Netfinity 5000 includes redundant 175W power supplies within a single 350W unit. This 350W unit is sufficient to operate fully configured systems, however optional Netfinity 175W Redundant Power Supply (P/N 10L7007) is required to preserve N+1 redundancy if any of the following are exceeded:
   - 512 MB of memory
   - Three hard disk drives and/or tape drives
   - Two PCI or ISA adapters

Netfinity 175W Redundant Power Supply (P/N 10L7007) includes a power cord which requires an additional power source. An independent power source such as a 2nd UPS or 2nd circuit is not required.
2. For runtimes and UPS attributes see Appendix C: UPS Runtime Estimate.
3. Height is 3U. See "Rack and NetBAY" for supported IBM racks.
4. Installation within a rack requires optional Monitor Compartment (P/N 94G7444).
5. Not supported for installation in a 19" rack.
6. Installation within a rack requires optional Netfinity Flat Panel Monitor Rack Mount Kit (P/N 37L6857) and Netfinity Rack Keyboard Tray (P/N 28L4707). A space saver keyboard may coexist within the same 28L4707 keyboard tray.
7. Height is 5U. See "Rack and NetBAY" for supported IBM racks.

Part Number	Description
	Conversion Kits
10L6972	Netfinity 5000 Rack-to-Tower Conversion Kit
10L7006	Netfinity 5000 Tower-to-Rack Conversion Kit
	Rack and NetBAY[1]
930842P	Netfinity Enterprise Rack
930842X	Netfinity Enterprise Expansion Cabinet
9306900	Netfinity Rack
9306200	Netfinity NetBAY22
	Keyboard and Mouse[2]
28L3644	Space Saver II Keyboard[3, 5]
01K1260	TrackPoint IV 104-Key Black Keyboard[4, 5]
28L3621	Preferred Keyboard (stealth black)[4]
28L3673	Sleek 2-Button Stealth Black Mouse

1. Netfinity 5000 rack models are housed in a 19" rack mountable drawer and require one of the racks listed here. See IBM Netfinity Rack Cabinet and Options section for IBM rack supported devices.
2.Tower models include both a mouse and keyboard. Rack models include neither.
3. Installation within a rack requires optional keyboard tray P/N 28L4707 (stows in "ready-to-use" position).
4. Installation within a rack requires optional keyboard tray P/N 28L4707. This keyboard cannot share a keyboard tray with a flat panel display.
5. Advanced TrackPoint IV features are not available on IBM Netfinity systems.

Netfinity 5000 Tape Options

Part Number	Description	Bays Supported	SCSI Interface (bit)	Form Factor	Termination Included	68/50-pin Converter Incl.	Ext. Tape Enclosures[1]
01K1282	12/24 GB DDS/3 4-mm Internal Tape Drive	A	8	89 mm (3.5") HH or 133 mm (5.25") HH	Y[2]	Y	3510020
01K1319	10/20 GB NS Internal SCSI Tape Drive	A	8	89 mm (3.5") SL or 133 mm (5.25") HH	Y[2]	Y	3510020, 3551001
00N7991	20/40 GB DDS/4 4-mm Internal Tape Drive	A	16 Ultra2 LVD	89 mm (3.5") HH or 133 mm (5.25") HH	Y[2]	N	3510020, 3551001
01K1325	20/40 GB 8-mm Internal SCSI Tape Drive	A	16	133 mm (5.25") HH	N[3]	N	3510020[4], 3551001
01K1320	20/40 GB DLT Internal SCSI Tape Drive	N/A[5]	8	133 mm (5.25") FH	Y[6]	Y	3503B0X, 3551001
04K0149	35/70 GB DLT Internal SCSI Tape Drive	N/A[5]	16	133 mm (5.25") FH	N	N	3503B0X[4], 3551001
00N7990	40/80 GB DLT Internal SCSI Tape Drive	N/A[5]	16 Ultra2 LVD	133 mm (5.25") FH	N	N	3503B0X[4], 3551001
	Associated Options						
32G3918	SCSI-2 16-bit Active Terminator	-	16	External	Y	N	3503B0X 3510020
36L9636	Netfinity Two-Drop Internal SCSI Cable[7]	-	16	Internal	Y	N	-
	External Tape Enclosures						
3510020	External Half High SCSI Storage Enclosure[8]	-	8/16	Desktop	N	N	-
3551001	NetMEDIA Storage Expansion Unit EL[9]	-	16	Rack	Y	N	-
10L7113	NetMEDIA Systems Management Adapter[10]	-	16 LVD	-	N	N	3551001
3503B0X	DLT External SCSI Enclosure[11]	-	16	Desktop	N	N	-
	External Tape Libraries[12]						
3502108	DLT Tape Autoloader	-	16	Desktop	Y	-	-
3570xxx	Magstar MP 3570 Tape Subsystem (models B2x and C2x)	-	Diff.	Rack	Y	-	-

1. To determine cable requirements, note the tape drive's SCSI interface, the appropriate SCSI controller from the system configurator section, and the desired enclosure, then refer to Appendix D: Cables-Storage Units-Controllers.
2. Tape drive is capable of self termination.
3. Termination is provided by the system unit's standard SCSI cabling.
4. Requires SCSI-2 16-bit Active Terminator (P/N 32G3918).
5. Netfinity 5000 does not support full-high (FH) devices internally. See External Tape Enclosure column.
6. A 16-bit terminator is included for attachment to an internal cable.
7. Netfinity Two-Drop Internal SCSI Cable (P/N 36L9636) is a wide two-drop terminated cable and is required for attachment of internal tape drives to the onboard SCSI controller of a Netfinity 5000 when the hot-swap backplane is attached to a RAID controller.

8. Provides a black desktop 133-mm (5.25") half-high (HH) tape enclosure. Connector is configurable as 50-pin Centronix or 68-pin high density. Requires either tape drive self termination or SCSI-2
16-bit Active Terminator (P/N 32G3918).
9. Provides a black 3U, 19" rack or NetBAY3 mountable tape enclosure. Provides two full high (FH) or four half high (HH) extended length 5.25" bays. External connector is 0.8-mm VHDCI. Includes two power supplies and two power cords.
10. Installs in 3551001. Provides repeater function and LVDS interface allowing longer cable lengths and auto-termination when the 3551001 is powered off.
11. Provides a black desktop DLT tape enclosure with a 68-pin high density external connector. Requires termination by the tape drive or by installation of a SCSI-2 16-bit Active Terminator (P/N 32G3918)
12. Tape library attributes and prerequisites are located in Appendix B: Tape Library Attributes.

NOTE: SCSI support for tape drives is provided by system unit onboard (standard) controller (no-RAID function) or PCI Fast Wide Ultra SCSI Adapter P/N 02K3454. When standard cabling is connected to a RAID controller, tape drives must utilize terminated Netfinity Two-Drop Internal SCSI Cable (P/N 36L9636), and attach to the onboard or other supported controller. Additional tape attributes can be found in Appendix A: Tape Drive Attributes.

For a complete list of all IBM and non-IBM option compatibility with Network Operating Systems and IBM Netfinity Servers, access the ServerProven™ compatibility pages on the Web at URL www.ibm.com/pc/us/compat.

Sample Configurations

Note: The following sample configurations are for illustration only and may not be suitable for any specific customer installation. Contact your IBM Business Partner or IBM Marketing Representative for assistance with your specific configuration requirements.

Internet Server

Part Number	Description	Quantity
8659-71Y	Netfinity 5000 Pentium III 650MHz/256 KB L2, 128 MB (R) ECC, Open, 32X, PCI/ISA	1
01K7241	Netfinity 64 MB SDRAM ECC RDIMM[1]	1
01K7364	Netfinity ServeRAID-3L Ultra2 SCSI Adapter	1
01K8053	Netfinity 9.1 GB Wide Ultra SCSI SCA-2 SL HDD[2]	4
01K1325	20/40 GB 8-mm Internal SCSI Tape Drive	1
36L9636	Netfinity Two-Drop Internal SCSI Cable	1
65464AN	G54 Color Monitor 15" (348 mm, 13.7" Viewable Image Size), stealth black	1
94G3135	APC Smart-UPS 1000	1
10L7007	Netfinity 175 W Redundant Power Supply	1

1. For a total of 192 MB of system memory.
2. For a total of 36.4 GB of RAID protected Hot-Swap, Hot-Spare internal storage.

An Internet server is a server that handles all requests from the Internet (intranet or extranet). Usually, this type of server has the same characteristics as a file server. The main difference is that an internet server talks a different language (TCP/IP vs. NETBEUI or IPX/SPX) and often needs to do an extra security check (Firewall). In the case of an Internet server, the server itself talks mostly to just one client, the Internet Service Provider (ISP), instead of many clients like a file server does.

With this in mind the IBM Netfinity 5000 was selected to provide an affordable price point for the growing internet server market with two way Pentium II processing, 192 MB of system memory (expandable to 2 GB), and availability features such as RAID protected internal hot-swap storage and power protection with an APC Smart-UPS.
The network configuration depends on the method that will be used to connect the server to the Internet. Usually fast Ethernet routers are used, but if other methods are used, you can add the appropriate adapter. The configuration includes a tape backup unit for secure backup of critical data in the event of a system or storage failure.

File and Print Server

Part Number	Description	Quantity
8659-61Y	Netfinity 5000 Pentium III 600MHz/512 KB L2, 128 MB (R) ECC, Open, 32X, PCI/ISA	1
01K7241	Netfinity 64 MB SDRAM ECC RDIMM[1]	1
01K7364	Netfinity ServeRAID-3L Ultra2 SCSI Adapter	1
01K8053	Netfinity 9.1 GB Wide Ultra SCSI SCA-2 SL HDD[2]	5
01K1325	20/40 GB 8-mm Internal SCSI Tape Drive	1
36L9636	Netfinity Two-Drop Internal SCSI Cable	1
65464AN	G54 Color Monitor 15" (348 mm, 13.7" Viewable Image Size), stealth black	1
94G3135	APC Smart-UPS 1000	1

1. For a total of 192 MB of system memory.
2. For a total of 45.5 GB of RAID protected Hot-Swap, Hot-Spare internal storage.

A small business or departmental server is usually required to perform all typical server functions while servicing up to 100 users in a normal workgroup computing environment, but doesn't require the high-end performance and fault tolerance properties of larger servers.

The sample configuration above consists of an IBM Netfinity 5000 with 192 MB of memory and 45.5 GB of hard disk space. It has enough processor power and memory to run most current network operating systems comfortably and enough hard disk drive space to store a significant amount of data with additional external storage expansion still available. Demanding network traffic is effectively handled by the standard 100 Mbps Ethernet connection. This configuration also includes a tape backup unit, monitor, and a UPS to keep the system protected during power surges and outages.

Rack Mounted Application Server

Part Number	Description	Quantity
8659-8RY	Netfinity 5000 Pentium III 700MHz/256 KB L2, 128 MB (R) ECC, Open, 32X, PCI/ISA (Rack 5U)	1
10K2165	Netfinity 700 MHz/256 KB Upgrade with Pentium III Processor	1
01K8043	Netfnity 256 MB SDRAM ECC RDIMM[1]	1
37L6086	Netfinity ServeRAID-3HB Ultra2 SCSI Adapter	1
36L9806	Netfinity 9.1 GB 10K-3 Wide Ultra SCSI Hot-Swap SL HDD[2]	5
01K1325	20/40 GB 8-mm Internal SCSI Tape Drive	1
36L9636	Netfinity Two-Drop Internal SCSI Cable	1
65464AN	G54 Color Monitor 15" (348 mm, 13.7" Viewable Image Size), stealth black	1
94G6674	APC Smart-UPS 1400RMB	1
10L7007	Netfinity 175 W Redundant Power Supply	1
	Industry Standard 19" Rack, EIA-310D, Min. depth of 28" (711 mm)	
9306200	Netfinity NetBAY22	1
28L3644	Space Saver II Keyboard	1
94G6670	Blank Filler Kit	2

1. For a total of 384 MB of system memory.
2. For a total of 36.4 GB usable RAID 5 storage (45.5GB total disk).

An application server differs from a file and print server in that it has a higher workload, in providing application serving requirements for users. With this in mind the IBM Netfinity 5000 was selected to provide an affordable price point for an application server, with two-way Pentium III processing, 384 MB of system memory (expandable to 2 GB), and availability features such as battery-backed cache RAID protected internal Hot-Swap storage and power protection with an APC Smart-UPS.

IBM Netfinity 5100 Configurator

Part Number	Processor Speed (MHz)[5]	Number of Processors (Std./Max)	L2 ECC Cache (KB)	Memory (Std./Max) (R = RDIMM)[2]	Form Factor	Power Supply Quantity (Std./Max)	Hot-Swap (Power, Slots, HDD, Fans)	Redundancy (Optional, Standard)[3]	Adv. System Management Processor	Onboard Ethernet (Mbps)	SCSI Controller (Dual, Ultra, RAID)	Removable Media Bays (Total/Avail)	Internal Hard Disk Drive (Std./Max)	CD-ROM (IDE)[4]	Bays: (Total/Avail)	Slots: (Total/Avail)
8658-11Y	667	1/2	256	128 MB(R)/4 GB	Tower	1/3	O - Power S - HDD	O - Power	Y	10/100	D,U160	4/2	0/218.4 GB	40X- 17X	10/8	5/5
8658-1RY[1]	667	1/2	256	128 MB(R)/4 GB	Rack (5U)	1/3	O - Power S - HDD	O - Power	Y	10/100	D,U160	4/2	0/218.4 GB	40X- 17X	10/8	5/5
8658-21Y	733	1/2	256	128 MB(R)/4 GB	Tower	1/3	O - Power S - HDD	O - Power	Y	10/100	D,U160	4/2	0/218.4 GB	40X- 17X	10/8	5/5
8658-2RY[1]	733	1/2	256	128 MB(R)/4 GB	Rack(5U)	1/3	O - Power S - HDD	O - Power	Y	10/100	D,U160	4/2	0/218.4 GB	40X- 17X	10/8	5/5

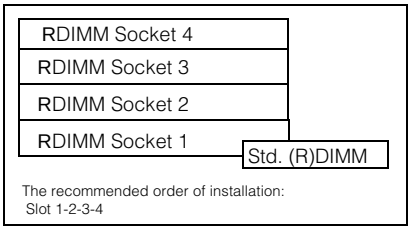
1. Housed in a 19" Rack mountable drawer and ships standard without a keyboard or mouse. See "Rack and NetBAY" under "Netfinity 5100 Power, Monitor & Accessories" for supported IBM racks.
2. High-speed, 133 MHz SDRAM.
3. Up to two additional Netfinity 250 W Hot-Swap Redundant Power Supplies (P/N 33L3760) and a single Netfinity Hot-Swap Power Supply Expansion Kit (P/N 37L6881) are required for power supply redundancy. See Netfinity 5100 Power, Monitor & Accessories for additional information.
4. Variable read rate. Actual playback speed will vary and is often less than the maximum possible.
5. Intel Pentium III processor with advanced transfer (full-speed) L2 cache.

Netfinity 5100 Processor Upgrades

Part Number	Processor Upgrades with 256 KB Cache (Full Speed)	SMP Support[1]	Processor Speed Upgrade[2]
00N7949	Netfinity 667 MHz 133 FSB/256 KB Upgrade with Pentium III Processor	1xY	-
00N7943	Netfinity 733 MHz 133 FSB/256 KB Upgrade with Pentium III Processor	2xY	1xY

1. One additional processor may be installed, providing a maximum of two. All processors must be identical in type, speed, and cache size.
2. Requires removal of the standard processor. A maximum of two processors may be installed. All processors must be identical in type, speed and cache size. Upgrades may require a BIOS update. To obtain the latest Flash BIOS, access www.ibm.com/pc/support and enter machine "Type-Model" in Quick Path. Select "Downloadable files" and then "BIOS".

Netfinity 5100 Memory



The recommended order of installation:
Slot 1-2-3-4

Part Number	Memory Description[1]
33L3123	Netfinity 128 MB, 133 MHz SDRAM ECC RDIMM II
33L3125	Netfinity 256 MB, 133 MHz SDRAM ECC RDIMM II
33L3127	Netfinity 512 MB, 133 MHz SDRAM ECC RDIMM II
33L3129	Netfinity 1 GB, 133 MHz SDRAM ECC RDIMM II

1. The recommended order of installation is in sequence from Socket 1 to Socket 4. Memory size is not a factor.

Total Memory[1]	Quantity of RDIMMs Added			
128 MB (1 x 128) Models	128 MB (33L3123)	256 MB (33L3125)	512 MB (33L3127)	1 GB (33L3129)
256 MB	1	-	-	-
384 MB	2 or	1	-	-
512 MB	3	-	-	-
640 MB	-	2 or	1	-
896 MB	-	3	-	-
1024 MB	-	4[2]	-	-
1152 MB	-	-	2 or	1
1664 MB	-	-	3	-
2048 MB	-	-	4[2]	-
2176MB	-	-	-	2
3200 MB	-	-	-	3
4096 MB (max)	-	-	-	4[2]

This table does not represent all possible memory configurations. Memory modules may vary in price per MB. Selection of smaller RDIMMs may provide a more cost-effective alternative to using larger RDIMMs.
1. Network Operating Systems may limit the maximum amount of addressable memory. See operating system specifications for further information.
2. Requires removal of standard memory.

Netfinity 5100 Hard Disk Drive (HDD) Storage

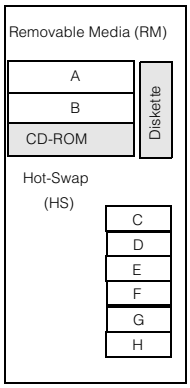
Total Int. Storage[1]	7200RPM Hard Disk Drives (HDDs)			10,000RPM Hard Disk Drives (HDDs)		
	9.1 GB (P/N 36L9744 or P/N 37L7201)[2]	18.2 GB (P/N 36L9745 or P/N 37L7202)[2]	36.4 GB (P/N 37L7203)	9.1 GB (P/N 36L9748 or P/N 37L7204)[2]	18.2 GB (P/N 36L9749 or P/N 37L7205)[2]	36.4 GB (P/N 37L7206)
0 GB	Standard on Base Models			Standard on Base Models		
9.1 GB	1	-	-	1	-	-
18.2 GB	2	1	-	2	1	-
27.3 GB	3	-	-	3	-	-
36.4 GB	4	2	1	4	2	1
45.5 GB	5	-	-	5	-	-
54.6 GB	6	3	-	6	3	-
72.8 GB	-	4	2	-	4	2
91 GB	-	5	-	-	5	-
109.2 GB	-	6	3	-	6	3
145.6 GB	-	-	4	-	-	4
182 GB	-	-	5	-	-	5
218.4 GB (max.)	-	-	6	-	-	6

This table does not represent all possible hard drive configurations.
1. Select a total storage row then select the quantity of HDDs from a column corresponding to the hard disk drive of choice. Total Internal Storage listed is within +/- 0.2 GB unless otherwise noted.
2. Mixing Ultra2 and Ultra160 HDDs on a single Ultra160 SCSI channel will result in all HDDs operating at Ultra2 bus speeds.

Bay	Form Factor	Height	Front Access	Usage
A	133 mm (5.25")	HH[1]	Yes	Open
B	133 mm (5.25")	HH[1]	Yes	Open
-	133 mm (5.25")	SL	Yes	IDE CD-ROM
-	89 mm (3.5")	SL	Yes	Diskette
C...H	HS	SL[2]	Yes	Open

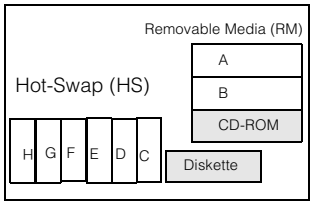
1. Two half-high (HH) bays can be combined to support a single full-high (FH) device. Installation of devices in Bays A or B requires Netfinity Hot-Swap Power Supply Expansion Kit (P/N 37L6881) and at least one Netfinity 250 W Hot-Swap Redundant Power Supply (P/N 33L3760). Installation of HDDs in Bays A and B also requires Netfinity Media Bay Conversion Kit (P/N 10K2340).
2. Two slim-line (SL) bays (C/D, E/F, G/H) can be combined to support a single half-high (HH) device.

Tower Model View



For clarity purposes, bay labels in these diagrams are for reference by the accompanying tables and are not the actual labels. Refer to the documentation shipped with the system for further details on actual labels.

Rack Model View



Part Number	Description	RPM	Height	Bays Supported	Max. Qty.
Ultra2 Hard Disk Drives (HDD)[1]					
36L9744	Netfinity 9.1 GB Wide Ultra2 SCSI Hot-Swap SL HDD	7200	SL	C...H	6
36L9745	Netfinity 18.2 GB Wide Ultra2 SCSI Hot-Swap SL HDD	7200	SL	C...H	6
36L9748	Netfinity 9.1 GB 10K-3 Wide Ultra2 SCSI Hot-Swap SL HDD	10,000	SL	C...H	6
36L9749	Netfinity 18.2 GB 10K-3 Wide Ultra2 SCSI Hot-Swap SL HDD	10,000	SL	C...H	6
Ultra160 Hard Disk Drives (HDD)[1]					
37L7201	Netfinity 9.1 GB Ultra160 SCSI Hot-Swap SL HDD	7200	SL	C...H	6
37L7202	Netfinity 18.2 GB Ultra160 SCSI Hot-Swap SL HDD	7200	SL	C...H	6
37L7203	Netfinity 36.4 GB Ultra160 SCSI Hot-Swap SL HDD[8]	7200	SL	C...H	6
37L7204	Netfinity 9.1 GB 10K-4 Ultra160 SCSI Hot-Swap SL HDD[9]	10,000	SL	C...H	6
37L7205	Netfinity 18.2 GB 10K-4 Ultra160[9]	10,000	SL	C...H	6
37L7206	Netfinity 36.4 GB 10-K Ultra160 SCSI Hot-Swap SL HDD[9]	10,000	SL	C...H	6
Non-Hot-Swap Internal Hard Disk Drives (HDDs)					
20L0553	91 GB Wide Ultra2 SCSI HDD[2]	7200	SL	A, B[2]	1
20L0554	18.2 GB Wide Ultra2 SCSI HDD[2]	7200	SL	A, B[2]	2
Associated Options					
10K2340	Netfinity Media Bay Conversion Kit[3]	-	-	A/B	1
33L3760	Netfinity 250 W Hot-Swap Redundant Power Supply	-	-	-	-
37L6881	Netfinity Hot-Swap Power Supply Expansion Kit	-	-	-	-

External Storage Expansion Units[4]		Form Factor
35301RU	Netfinity EXP200 Storage Expansion Unit[5]	Rack (3U)
37L5857	Netfinity EXP200 Rack-to-Tower Conversion Kit	-
37L0075	Netfinity EXP200 350 W Redundant Power Supply	-
35311RU	Netfinity EXP300 Storage Expansion Unit[6, 9]	Rack (3U)
09N7296	Netfinity EXP300 Rack-to-Tower Conversion Kit	-
35601RU	Netfinity FAStT EXP500 Storage Expansion Unit[7]	Rack (3U)

1. Mixing Ultra2 and Ultra160 HDDs on a single Ultra160 SCSI channel will result in all HDDs operating at Ultra2 bus speeds.
2. Requires Netfinity Media Bay Conversion Kit (P/N 10K2340), Netfinity Hot-Swap Power Supply Expansion Kit (P/N 37L6881) and Netfinity 250 W Hot-Swap Redundant Power Supply (P/N 33L3760).
3. Netfinity Media Bay Conversion Kit (P/N 10K2340) converts two half-high 5.25" removable media bay into two non-hot-swap HDD bays. Requires installation of both Netfinity Hot-Swap Power Supply Expansion Kit (P/N 37L6881) and at least one Netfinity 250 W Hot-Swap Redundant Power Supply (P/N 33L3760).
4. Select an optional SCSI controller then refer to Appendix D: Cables-Storage Units-Controllers to confirm the controller supports the desired External Storage Expansion Unit and to select a supported cable. For HDD or other expansion unit options, see the specific expansion unit section.
5. Netfinity EXP200 includes a single 2 M Ultra2 SCSI cable and single hot-swap 350W power supply and power cord. Optional hot-swap Netfinity EXP200 350W Redundant Power Supply (P/N 37L0075) includes an additional power cord.
6. Netfinity EXP300 includes a single 2 M Ultra2 SCSI cable and dual hot-swap 500W redundant power supplies, each with its own power cord.
7. Netfinity FAStT EXP500 Storage Expansion Unit (P/N 35601RU) includes dual hot-swap 350W power supplies, each with its own power cord.
8. Planned availability of June 1, 2000.
9. Planned availablilty of June 30, 2000.

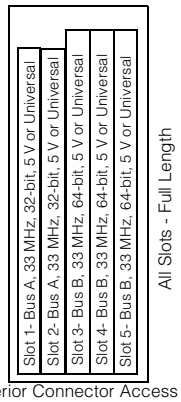
Netfinity 5100 Internal SCSI Cabling

The Netfinity 5100 contains a DASD backplane supporting six hot-swap, SCA-2 compliant drive bays. The backplane is connected to channel A of the intergrated dual-channel, Ultra160 SCSI controller connector through a 16-bit LVD SCSI cable. If internal RAID support is required, this cable can be used to connect to a supported RAID adapter rather than the integrated SCSI controller. No external SCSI port is included.

A two-drop, 16-bit LVD SCSI cable with integrated terminator is also included with the Netfinity Hot-Swap Power Supply Expansion Kit (P/N 37L6881).This cable is included in the expansion kit because installation of SCSI devices in bays A and B requires additional power. The two-drop cable supports up to two internal devices in these bays. This cable can be attached to channel B of the integrated dual-channel Ultra160 SCSI controller or to a supported SCSI adapter.

Netfinity 5100 I/O Options

Part Number	Description	Adapter Length	PCI Support	Slots Supported
	Storage Controllers[1]			
19K0564	Netfinity ServeRAID-3L Ultra2 SCSI Adapter II[2]	Full	32-bit	1...5
37L6086	Netfinity ServeRAID-3HB Ultra2 SCSI Adapter[3]	Full	32/64-bit	1...5
37L6091	Netfinity ServeRAID-4L Ultra160 SCSI Controller[4, 15]	Full	32/64-bit	1...5
37L6080	Netfinity ServeRAID-4M Ultra160 SCSI Controller[5, 15]	Full	32/64-bit	1...5
37L6889	Netfinity ServeRAID-4H Ultra160 SCSI Controller[6]	Full	32/64-bit	1...5
02K3454	PCI Fast/Wide Ultra SCSI Adapter	Half	32-bit	1...5
	Fibre Storage Conrollers and Options[7]			
01K7297	Netfinity Fibre Channel PCI Adapter	Half	32/64-bit	1...5
35261RU	Netfinity Fibre Channel RAID Controller Unit	-	-	-
01K7296	Netfinity Fibre Channel Failsafe RAID Controller	-	-	-
00N6881	Netfinity FAStT Host Adapter	Half	32/64-bit	1...5
35521RU	Netfinity FAStT500 RAID Controller	-	-	-
2109S08	SAN Fibre Channel Switch, 8-Port	-	-	-
2109S16	SAN Fibre Channel Switch, 16-Port	-	-	-
	Networking[8]			
	Ethernet			
34L1501	Netfinity 10/100 Ethernet PCI Adapter 2	Half	32-bit	1...5
34L0301	Netfinity Gigabit Ethernet SX Adapter	Half	32/64-bit	1...5
	Token Ring			
34L0501	Token-Ring 100/16/4 High-Speed PCI Adapter	Half	32-bit	1...5
34L0601	Token-Ring 16/4 PCI Adapter 2	Half	32-bit	1...5
	Communications[9]			
33L4618	PCI V.90 56K Data/Fax Modem[10]	Half	32-bit	1...5
	Systems Management[11]			
01K7209	Netfinity Advanced System Management PCI Adapter[12]	Full	32-bit	1...5[13]
36L9654	Netfinity Advanced System Management Token-Rlng Connection[14]	-	-	-


Slot 1- Bus A, 33 MHz, 32-bit, 5 V or Universal
Slot 2- Bus A, 33 MHz, 32-bit, 5 V or Universal
Slot 3- Bus B, 33 MHz, 64-bit, 5 V or Universal
Slot 4- Bus B, 33 MHz, 64-bit, 5 V or Universal
Slot 5- Bus B, 33 MHz, 64-bit, 5 V or Universal
All Slots - Full Length
Exterior Connector Access

1. Netfinity 5100 includes a dual-port, dual-channel Ultra160 SCSI controller for internal use only. No standard external port is available. See "Internal SCSI Cabling" for cabling alternatives.
2. Netfinity ServeRAID-3L Ultra2 SCSI Adapter II (P/N 19K0564) provides either one internal or one external (0.8-mm VHDCI) LVDS SCSI channel and is a planned replacement for P/N 01K7364.
3. Netfinity ServeRAID-3HB Ultra2 SCSI Adapter (P/N 37L6086) provides one internal and 2 external (0.8-mm VHDCI) LVDS SCSI channels. The internal channel can be configured for external usage (0.8-mm VHDCI connector) providing a total of 3 external LVDS SCSI channels. Includes 32 MB of mirrored battery-backup cache which helps protect against data loss in write-back cache mode in the event of a power outage or adapter maintenance.
4. Netfinity ServeRAID-4L Ultra160 SCSI Controller is powered by a 100 MHz Intel i960 processor and provides a single channel, 16 MB of ECC cache and either one internal or one external Ultra160 connection. External connector is 0.8-mm VHDCI.
5. Netfinity ServeRAID-4M Ultra160 SCSI Controller is powered by a 100 MHz Intel i960 processor and provides two channels, 64 MB of battery-backed ECC cache and two internal and two external Ultra160 connectors (only two connectors may be utilized). External connectors are 0.8-mm VHDCI.
6. Netfinity ServeRAID-4H Ultra160 SCSI Controller is powered by a 266 MHz PowerPC 750 processor and provides 128 MB of battery-backed ECC cache with two internal and up to four external Ultra160 connectors (only four connectors may be utilized). External connector is 0.8-mm VHDCI.
7. See Netfinity Fibre Array Solutions section for additional configuration information.
8. Netfinity 5100 includes a full-duplex, 10/100 Mbps Ethernet PCI controller.
9. Netfinity 5100 includes two USB ports, one serial and one parallel port.
10. Due to homologation variances, modem availability may differ by country.
11. The Netfinity Advanced Systems Management Processor and Interconnect Bus integrated into Netfinity 5100 works with Netfinity Manager to provide significant system management function. When used with optional Netfinity Advanced System Management PCI Adapter (P/N 01K7209) additional management and control of up to 12 service processors from a remote console through a single modem or LAN connection is possible.
12. Includes PCI adapter, Netfinity Advanced System Management Interconnect Cable Kit components and 56-watt AC adapter which requires a separate power source. Provides an integrated 10/100 Ethernet port and PCMCIA slot to support optional Netfinity Advanced System Management Token-Ring Connection (P/N 36L9654).
13. A maximum quantity of one is supported.
14. Contains an IBM Turbo 16/4 Token-Ring PCI Card, which installs in the PCMCIA card slot of Netfinity Advanced System Management PCI Adapter (P/N 01K7209), and a PC Card to 9-pin D-Shell cable which is routed to a rear chassis cut-out. The Netfinity Advanced System Management PCI Adapter's integrated Ethernet port and Netfinity Advanced System Management Token-Ring Connection cannot be connected or used together. To download the latest firmware access URL www.pc.ibm.com/us/netfinity. Select "Server Support", "Family", "Model", "Downloadable files" and finally "Advanced Systems Management".
15. Planned availability of June 30, 2000.

Netfinity 5100 Power, Monitor & Accessories

Part Number	Description
	Power[1]
33L3760	Netfinity 250 W Hot-Swap Redundant Power Supply[2]
37L6881	Netfinity Hot-Swap Power Supply Expansion Kit[3]
	Uninterruptable Power Supply (UPS)[4]
94G3135	APC Smart-UPS 1000
94G3136	APC Smart-UPS 1400
94G6674	APC Smart-UPS 1400RMB[5]
94G6676	APC Smart-UPS 3000RMB[5]
37L6861	APC Smart-UPS 5000RMB[6]
	Monitors[7]
6331B2N	E54 Color Monitor 15" (350-mm, 13.8" Viewable Image Size), stealth black[8]
6332J1N	E74 Color Monitor 17" (403-mm, 15.9" Viewable Image Size), stealth black[8]
654841N	G76 Color Monitor 17" (406-mm, 16" Viewable Image Size), stealth black[8]
65494AN	G96 Color Monitor 19" (454-mm, 17.9" Viewable Image Size), stealth black[10]
9513AG1	T55A Flat Panel Color Monitor (381-mm, 15" Viewable Image Size)[8], stealth black[9]
9519AG1	T85A Flat Panel Color Monitor (459-mm, 18.1" Viewable Image Size), stealth black[10]

1. Netfinity 5100 systems include a single 250 W, hot-swap power supply and a single 9 ft. 110 V power cord with an IEC 320-C13 connector on the system end and NEMA 5-15P on the other end. Power supply redundancy may be achieved with the addition of optional Netfinity 250 W Hot-Swap Redundant Supply (P/N 33L3760). Netfinity Hot-Swap Power Supply Expansion Kit (P/N 37L6881) is required when optional power supplies are to be added. Redundancy for configurations of greater than 250 W requires installation of a second optional supply. Whenever devices are installed in bays A or B, both the expansion kit and a second power supply are required. Generally, configurations containing greater than six PCI adapters and HDDs, in any combination, will require the second power supply. To assist in determining when an additional power supply is required to preserve redundancy, a "Non-Redundant LED" is a standard feature of the Netfinity 5100.
2. Netfinity 250 W Hot-Swap Redundant Power Supply (P/N 33L3760) includes a single 6 ft.power cord for connection to a low voltage wall outlet. Netfinity Hot-Swap Power Supply Expansion Kit (P/N 37L6881) must be installed prior to adding optional power supplies.
3. Netfinity Hot-Swap Power Supply Expansion Kit (P/N 37L6881) includes a hot-swap power backplane, terminated two-drop LVD SCSI cable, and mounting brackets for DLT tape drives. Required when installing a second power supply or devices in the 133-mm (5.25") HH bays.
4. For runtimes and UPS attributes see Appendix C: UPS Runtime Estimate.
5. Height is 3U. See "Rack and NetBAY" for supported IBM racks.
6. Height is 5U. See "Rack and NetBAY" for supported IBM racks.
7. Netfinity 5100 uses an SVGA controller (S3 Savage4 chipset) with 8 MB of video memory.
8. Installation within a rack requires optional Monitor Compartment (P/N 94G7444).
9. Installation within a rack requires optional Netfinity Flat Panel Monitor Rack Mount Kit (P/N 37L6857) and Netfinity Rack Keyboard Tray (P/N 28L4707). A space saver keyboard may coexist within the same 28L4707 keyboard tray.
10. Not supported for installation in a 19" rack.

Part Number	Description
	Conversion Kits
37L6858	Netfinity 5Ux24D Tower-to-Rack Kit
	Rack and NetBAY[1]
930842P	Netfinity Enterprise Rack
930842X	Netfinity Enterprise Expansion Cabinet
9306900	Netfinity Rack
9306200	Netfinity NetBAY22
	Keyboard and Mouse[2]
28L3644	Space Saver II Keyboard[3, 5]
01K1260	TrackPoint IV 104-Key Black Keyboard[4, 5]
28L3621	Preferred Keyboard (stealth black)[4]
28L3673	Sleek 2-Button Stealth Black Mouse

1. Netfinity 5100 rack models are housed in a 19" rack mountable drawer and require one of the racks listed here. See IBM Netfinity Rack Cabinet and Options section for IBM rack supported devices.
2. Tower models include both a keyboard and mouse. Rack models include neither.
3. Installation within a rack requires optional keyboard tray P/N 28L4707 (stows in "ready-to-use" position).
4. Installation within a rack requires optional keyboard tray P/N 28L4707. This keyboard cannot share a keyboard tray with a flat panel display.
5. Advanced TrackPoint IV features are not available on IBM Netfinity systems.

Netfinity 5100 Tape Options

Part Number	Tape Drives	Bays Supported	SCSI Interface (bit)	Form Factor	Termination Included	68/50-pin Converter Incl.	Ext. Tape Enclosures
00N7991	20/40 GB DDS/4 4-mm Internal Tape Drive	A, B[1]	16 Ultra2 LVD	89 mm (3.5") HH or 133 mm (5.25") HH	Y[2]	N	-
01K1325	20/40 GB 8-mm Internal SCSI Tape Drive	A, B[1]	16	133 mm (5.25") FH	N[2]	N	-
01K1320	20/40 GB DLT Internal SCSI Tape Drive	A/B[1]	8	133 mm (5.25") FH	Y[2]	Y	-
00N7990	40/80 GB DLT Internal SCSI Tape Drive	A/B[1]	16 Ultra2 LVD	133 mm (5.25") FH	N[2]	N	-
	Associated Options						
37L6881	Netfinity Hot-Swap Power Supply Expansion Kit[3]	-	-	-	-	-	-
33L3760	Netfinity 250 W Hot-Swap Redundant Power Supply	-	-	-	-	-	-

1. Installation of devices in Bays A or B requires installation of both Netfinity Hot-Swap Power Supply Expansion Kit (P/N 37L6881) and at least one Netfinity 250 W Hot-Swap Redundant Power Supply (P/N 33L3760).
2. Netfinity Hot-Swap Power Supply Expansion Kit (P/N 37L6881) includes a terminated LVD SCSI cable.
3. Netfinity Hot-Swap Power Supply Expansion Kit (P/N 37L6881) includes a hot-swap power backplane, terminated two-drop LVD SCSI cable, and mounting brackets for DLT tape drives. Required when installing a second power supply or devices in the 133 mm (5.25") HH bays.

Note: SCSI support for tape drives is provided by system unit onboard controller or PCI Fast Wide Ultra SCSI Adapter (P/N 02K3454).

Netfinity 5100 Sample Configurations

Note: The following sample configurations are for illustration only and may not be suitable for any specific customer installation. Contact your IBM Business Partner or IBM Marketing Representative for assistance with your specific configuration requirements.

Internet Server

Part Number	Description	Quantity
8658-21Y	Netfinity 5100 733 MHz/256 KB, 128 MB ECC, OPEN, 40X, PCI	1
33L3123	Netfinity 128 MB SDRAM ECC RDIMM II[1]	1
37L6091	Netfinity ServeRAID-4L Ultra160 SCSI Controller	1
37L7201	Netfinity 9.1 GB Ultra160 SCSI Hot-Swap SL HDD[2]	4
01K1325	20/40 GB 8-mm Internal SCSI Tape Drive	1
6331B2N	E54 Color Monitor 15" (350-mm, 13.8" Viewable Image Size), stealth black	1
94G3135	APC Smart-UPS 1000	1
37L6881	Netfinity Hot-Swap Power Supply Expansion Kit	1
33L3760	Netfinity 250 W Hot-Swap Redundant Power Supply	1

1. For a total of 256 MB of system memory.
2. For a total of 36.4 GB of RAID protected hot-swap, hot-spare internal storage.

An internet server is a server that handles all requests from the Internet (intranet or extranet). Usually this type of server has the same characteristics as a file server. The main difference is that an internet server talks a different language (TCP/IP vs. NETBEUI or IPX/SPX) and often needs to do an extra security check (Firewall). In the case of an internet server, the server itself talks mostly to just one client, the Internet Service Provider (ISP), instead of many clients like a file server does.

With this in mind the IBM Netfinity 5100 was selected to provide an affordable price point for the growing internet server market, 256 MB of system memory (expandable to 4 GB, and availability features such as RAID protected internal hot-swap storage and power protection with an APC Smart-UPS.

The network configuration depends on the method that will be used to connect the server to the internet. Usually fast Ethernet routers are used, but if other methods are used, you can add the appropriate adapter. The configuration includes a tape backup unit for secure backup of critical data in the event of a system or storage failure.

File and Print Server

Part Number	Description	Quantity
8658-11Y	Netfinity 5100 733 MHz/256 KB, 128 MB ECC, OPEN, 40X, PCI	1
33L3123	Netfinity 128 MB SDRAM ECC RDIMM II[1]	1
37L6091	Netfinity ServeRAID-4L Ultra160 SCSI Controller	1
37L7201	Netfinity 9.1 GB Ultra160 SCSI Hot-Swap SL HDD[2]	5
01K1325	20/40 GB 8-mm Internal SCSI Tape Drive	1
6331B2N	E54 Color Monitor 15" (350-mm, 13.8" Viewable Image Size), stealth black	1
94G3135	APC Smart-UPS 1000	1
37L6881	Netfinity Hot-Swap Power Supply Expansion Kit	1
33L3760	Netfinity 250 W Hot-Swap Redundant Power Supply	1

1. For a total of 256 MB of system memory.
2. For a total of 45.5 GB of RAID protected hot-swap, hot-spare internal storage.

A small business or departmental server is usually required to perform all typical server functions while servicing up to 100 users in a normal workgroup computing environment, but doesn't require the high end performance and fault tolerance properties of larger servers.

The sample configuration above consists of an IBM Netfinity 5100 with 256 MB of memory (expandable to 4 GB) and 45.5 GB of hard disk space. It has enough processor power and memory to run most current network operating systems comfortably and enough hard disk drive space to store a significant amount of data with additional external storage expansion still available. Demanding network traffic is effectively handled by the standard 100 Mbps Ethernet connection.

The configuration also includes a tape backup unit, monitor, and a UPS to keep the system protected during power surges and outages.

Rack Mounted Application Server

Part Number	Description	Quantity
8658-2RY	Netfinity 5100 733 MHz/256 KB, 128 MB ECC, OPEN, 40X, PCI (Rack 5U)	1
00N7943	Netfinity 733 MHz 133 FSB/256 KB Upgrade with Pentium III Processor	1
33L3125	Netfinity 256 MB 133 MHz SDRAM ECC RDIMM II[1]	1
37L6080	Netfinity ServeRAID-4M Ultra160 SCSI Controller	1
37L7201	Netfinity 9.1 GB Ultra160 SCSI Hot-Swap SL HDD[2]	5
01K1325	20/40 GB 8-mm Internal SCSI Tape Drive	1
6331B2N	E54 Color Monitor 15" (350-mm, 13.8" Viewable Image Size), stealth black	1
94G6674	APC Smart-UPS 1400RMB	1
33L3760	Netfinity 250 W Hot-Swap Redundant Power Supply	1
37L6881	Netfinity Hot-Swap Power Supply Expansion Kit	1
	Industry Standard 19" Rack, EIA-310D, min. depth of 28" (711 mm)	
9306200	Netfinity NetBAY22	1
28L3644	Space Saver II Keyboard	1
28L3645	Blank Filler Kit	2

1. For a total of 384 MB of system memory.
2. For a total of 36.4 GB of usable RAID 5 storage (45.5 GB total disk).

An application server differs from a file and print server in that it has a higher workload, in providing application serving requirements for users. With this in mind, the IBM Netfinity 5100 was selected to provide an affordable price point for an application server, with two-way Pentium III processing, 384 MB of system memory (expandable to 4 GB), and availability features such as battery-backed cache, RAID protected internal hot-swap storage and power protection with an APC Smart-UPS.

IBM Netfinity 5500 Configurator

Part Number	Withdrawal Date (mmddyy)[9]	Processor Speed (MHz)	Number of Processors (Std/Max)	L2 ECC Cache. (KB)	Memory (Std./Max.) (R=RDIMM)[2]	Form Factor	Power Supply Quantity (Std/Max)	Hot-Swap (Power, Slots, HDD, Fans)	Redundancy (Optional, Standard)	Adv. System Management Processor	Onboard Ethernet (Mbps)	SCSI Controller (Dual, Ultra, RAID)	Removable Media Bays (Total/Avail.)	Internal Hard Disk Drives (Std/Max)	CD-ROM (IDE)	Bays: (Total/Avail)	Slots: (Total/Avail)
8660-61U	042800	500[7]	1/2	512	128 MB (R) /1GB	Tower[4]	1/2	P, S, H, F	S-Fans, O-Power	Y	10/100	D,R	4/2	0/109 GB[5]	(32X-14X)[6]	10/8	7/7
8660-6RU[1]	042800	500[7]	1/2	512	128 MB (R) /1GB	Rack (8U)	1/2	P, S, H, F	S-Fans, O-Power	Y	10/100	D,R	4/2	0/109 GB	(32X-14X)[6]	10/8	7/7
8660-62U[8]	042800	500[7]	1/2	512	256 MB (R) /1GB	Tower[4]	1/2	P, S, H, F	S-Fans, O-Power	Y	10/100	D,R	4/2	0/109 GB[5]	(32X-14X)[6]	10/8	7/7
8660-6SU[1, 8]	042800	500[7]	1/2	512	256 MB (R) /1GB	Rack (8U)	1/2	P, S, H, F	S-Fans, O-Power	Y	10/100	D,R	4/2	0/109 GB	(32X-14X)[6]	10/8	7/7
8660-72U	042800	550[7]	1/2	512	256 MB (R) /1GB	Tower[4]	1/2	P, S, H, F	S-Fans, O-Power	Y	10/100	D,R	4/2	0/109 GB[5]	(32X-14X)[6]	10/8	7/7
8660-7SU[1]	042800	550[7]	1/2	512	256 MB (R) /1GB	Rack (8U)	1/2	P, S, H, F	S-Fans, O-Power	Y	10/100	D,R	4/2	0/109 GB	(32X-14X)[6]	10/8	7/7

1. Housed in a 19" Rack mountable drawer and ships standard without a keyboard or mouse. See "Rack and NetBAY" under "Netfinity 5500 Power, Monitor & Acessories" for supported IBM racks.
2. Netfinity 5500 models which have Netfinity Upgrade for Pentium II Xeon Processors (P/N 01K8049) installed have a maximum memory capacity of 2 GB. With Netfinity Four-Way Processor Upgrade Kit (P/N 28L1014) the maximum memory is 4 GB.
3. The memory DIMM shipped with this model is NOT compatible with Registered DIMMs (RDIMMs), Netfinity Upgrade for Pentium II Xeon Processors (P/N 01K8049) or Netfinity Four-Way Processor Upgrade Kit (P/N 28L1014) and must be replaced if either upgrade or a RDIMM is installed.
4. Tower models come equipped with a single NetBAY3, 3U stackable enclosure. Up to a maximum of three are supported.
5. With a single Netfinity EXP15 installed in the standard NetBAY3, the maximum internal storage increase by 364 GB.
6. Variable read rate. Actual playback speed will vary and is often less than the maximum possible.
7. Intel Pentium III Processor.
8. Not available in the USA.
9. Not available from IBM after this date. Business Partner inventory may be available.

Netfinity 5500 Processor Upgrades

Part Number	Processor Upgrades with 512 KB Cache	SMP Support[1]	Processor Speed/Cache Upgrade[2]
10L5883	Netfinity 350 MHz, Upgrade with Pentium II Processor	All 1xU	-
10L5884	Netfinity 400/100 MHz, 512 KB Processor Upgrade	All 4xU	All 1xU
10L5900	Netfinity 450/100 MHz, 512 KB Processor Upgrade with Pentium II Processor	All 5xU	All 1...4xU
36L9673	Netfinity 500 MHz/512 KB Upgrade with Pentium III Processor	All 6xU	All 1...5xU
33L5112	Netfinity 550 MHz/512 KB Upgrade with Pentium III Processor	All 7xU	All 1...6xU
01K8049	Netfinity Upgrade for Pentium II Xeon Processors[3]	-	All[3]
28L1014	Netfinity Four-Way Processor Upgrade Kit[4]	-	All[4]

1. One additional processor may be installed, providing a maximum of two. All processors must be identical in type, speed, and cache size.
2. Requires removal of the standard processor. A maximum of two processors may be installed. All processors must be identical in type, speed and cache size. Upgrades may require a BIOS update. To obtain the latest Flash BIOS, access www.ibm.com/pc/support and enter machine "Type-Model" in Quick Path. Select "Downloadable files" and then "BIOS".
3. Provides required components for upgrading an IBM Netfinity 5500 to a 2-way SMP Pentium II Xeon processor capable system. Key components include: two slot 2 processor sockets, 440Gx Host Bridge Controller, four RDIMM memory sockets, four VRM sockets, and a terminator card. Components that are NOT included and must be ordered separately: processors and memory. All Netfinity 5500 models require processor replacement. Standard memory DIMMs on models 8660-11U, 1RU, 41U, 4RU, 51U, and 5RU are not compatible and must be replaced. Refer to Netfinity 5500 M10 configurator for option compatibility with any 5500 containing upgrade P/N 01K8049. A maximum of two processors may be installed. All processors must be identical in type, speed and cache size. Upgrades may require a BIOS update. To obtain the latest Flash BIOS, access www.ibm.com/pc/support and enter machine "Type-Model" in Quick Path. Select "Downloadable files" and then "BIOS".
4. Provides required components for upgrading an IBM Netfinity 5500 to a 4-way Pentium II Xeon or Pentium III Xeon SMP capable system. Installation of P/N 28L1014 prevents the use of PCI slot 6 and shortens slot 5 to Half Length. Installation must be performed by an IBM trained servicer or IBM Customer Engineer. Installation is included in the purchase price. Key components include: memory card (4 GB capacity), processor card assembly, power backplane, 500W power supply, assorted cables, LED card, and chassis hardware. Components that are NOT included and must be ordered separately: processors, memory and 500W redundant power supply. All Netfinity 5500 models require processor replacement. Standard memory DIMMs on models 8660-11U, 1RU, 41U, 4RU, 51U, and 5RU are not compatible and must be replaced. Refer to Netfinity 5500 M20 configurator for option compatibility with any 5500 containing upgrade P/N 28L1014. A maximum of four processors may be installed. All processors must be identical in type, speed and cache size. Upgrades may require a BIOS update. To obtain the latest Flash BIOS, access www.ibm.com/pc/support and enter machine "Type-Model" in Quick Path. Select "Downloadable files" and then "BIOS".

Netfinity 5500 Memory

Total Memory	DIMM Models 8660-11U, 1RU, 41U, 4RU, 51U, 5RU	RDIMM Models 8660-61U, 6RU	RDIMM Models 8660-42U, 4SU, 52U, 5SU, 62U, 6SU, 7xU
128 MB	128 MB DIMM Standard	128 MB RDIMM Standard	-
192 MB	1 x 01K8022	-	-
256 MB	1 x 01K8023	1 x 01K7262	256 MB RDIMM Standard
384 MB	2 x 01K8023	1 x 01K8043	1 x 01K7262
512 MB	3 x 01K8023	1 x 01K7262, 1 x 01K8043	1 x 01K8043
640 MB	2 x 01K8043, 1 x 01K7262[1]	2 x 01K8043	1 x 01K8043, 1 x 01K7262
768 MB	3 x 01K8043[1]	1 x 01K7262, 2 x 01K8043	2 x 01K8043
896 MB	3 x 01K8043, 1 x 01K7262[1]	3 x 01K8043	2 x 01K8043, 1 x 01K7262
1024 MB (max)	4 x 01K8043[1]	4 x 01K8043[1]	3 x 01K8043

RDIMM Slot 1 - J4
RDIMM Slot 2 - J3
RDIMM Slot 3 - J2
RDIMM Slot4 - J1
Standard (R)DIMM

This table does not represent all possible memory configurations.
1. Replace standard (R)DIMMs.

Part Number	Memory Description	Models 8660-11U, 1RU, 41U, 4RU, 51U, 5RU	All Other Models	Upgrade 01K8049 or 28L1014
01K8022	Netfinity 64 MB SDRAM ECC DIMM[1]	X	X[3]	-
01K8023	128 MB SDRAM ECC DIMM[1]	X	X[3]	-
01K7262	Netfinity 128 MB SDRAM ECC RDIMM[1]	X[2]	X	X[4]
01K8043	Netfinity 256 MB SDRAM ECC RDIMM[1]	X[2]	X	X[4]

1. DIMMs or RDIMMs must be installed in sequence beginning with slot 4 (J1) and ordered from largest to smallest.
2. Requires removal of standard DIMM. Cannot co-exist with 64 MB (P/N 01K8022) or 128 MB (P/N 01K8023) DIMMs.
3. Requires removal of standard RDIMM. Cannot co-exist with 128 MB (P/N 01K7262) or 256 MB (P/N 01K8043) RDIMMs.
4. Models with Netfinity Upgrade for Pentium II Xeon Processors (01K8049) installed should reference Netfinity 5500 M10 for compatibility and sample configurations. Models with Netfinity Four-Way Processor Upgrade Kit (28L1014) installed should reference Netfinity 5500 M20 for compatibility and sample configurations.

Netfinity 5500 Hard Disk Drive (HDD) Storage

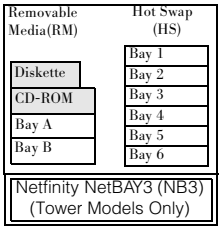
Total Int. Storage[1]	7200 RPM Hard Disk Drives (HDDs)			10,000 RPM Hard Disk Drives (HDDs)		
	9.1 GB	18.2 GB	36.4 GB	9.1 GB	18.2 GB	36.4 GB
0 GB	Standard on Base Models			Standard on Base Models		
9.1 GB	1 x 01K8053	-	-	1 x 36L9806	-	-
18.2 GB	2 x 01K8053 or	1 x 02K0440		2 x 36L9806 or	1 x36L9807	-
27.2 GB	3 x 01K8053	-	-	3 x 36L9806	-	-
36.4 GB	4 x 01K8053 or	2 x02K0440 or	1 x 02K0441	4 x 36L9806 or	2 x 36L9807 or	1 x 36L9808
45.5 GB	5 x 01K8053	-	-	5 x 36L9806	-	-
54.6 GB	6 x 01K8053 or	3 x02K0440	-	6 x 36L9806 or	3 x 36L9807	-
72.8 GB	-	4 x 02K0440 or	2 x 02K0441	-	4 x 36L9807 or	2 x 36L9808
91 GB	-	5 x 02K0440	-	-	5 x 36L9807	-
109 GB(max)	-	6 x 02K0440 or	3 x 02K0441	-	6 x 36L9807 or	3 x 36L9808

This table does not represent all possible hard drive configurations.
1. Total Internal Storage listed is within ± 0.2 GB unless otherwise noted.

Bay	Form Factor	Height	Front Access	Usage
-	89 mm (3.5")	SL	Yes	Diskette
-	133 mm (5.25")	HH	Yes	IDE CD-ROM
A	133 mm (5.25")	HH[1]	Yes	Open
B	133 mm (5.25")	HH[1]	Yes	Open
1...6	HS	SL[2]	Yes	Open
NB3[3]	19" Rack	3U	Yes	Open

Part Number	Description	RPM	Height	Bays Supported	Max. Qty.
Internal Hard Disk Drives					
01K8053	Netfinity 9.1 GB Wide Ultra SCSI SCA-2 SL HDD	7200	SL	1...6	6
02K0440	Netfinity 18.2 GB Wide Ultra SCSI Hot-Swap SL HDD	7200	SL	1...6	6
02K0441	Netfinity 36.4 GB Wide Ultra SCSI Hot-Swap HDD	7200	HH[1]	1/2, 3/4, 5/6	3
36L9806	Netfinity 9.1 GB 10K-3 Wide Ultra SCSI Hot-Swap SL HDD	10,000	SL	1...6	6
36L9807	Netfinity 18.2 GB 10K-3 Wide Ultra SCSI Hot-Swap SL HDD	10,000	SL	1...6	6
36L9808	Netfinity 36.4 GB 10K-3 Wide Ultra SCSI Hot-Swap HDD	10,000	HH[1]	1/2, 3/4, 5/6	3

1. Two half-high (HH) bays can be combined to support a single full-high device.
2. Two slim-line (SL) bays can be combined to support a single half-high device.
3. One NetBAY3 is included with tower models and a total of three are supported. See IBM Netfinity NetBAY3 Stackable Enclosure section for supported devices.



	External Storage Expansion Units[2]	Form Factor
35202RU	Netfinity EXP15 Storage Expansion Unit	Rack (3U)
35301RU	Netfinity EXP200 Storage Expansion Unit	Rack (3U)
37L5857	Netfinity EXP200 Rack-to-Tower Conversion Kit[3]	Tower
37L0075	Netfinity EXP200 350 w Redundant Power Supply[4]	-
35601RU	Netfinity FAStT EXP500 Storage Expansion Unit[5]	Rack (3U)

1. Two slim-line (SL) bays can be combined to support a single half-high (HH) device.
2. Supported by the onboard external SCSI port (requires Netfinity SCSI Controller Cable P/N 03K9313). Select the onboard or optional SCSI controller then refer to Appendix D: Cables-Storage Units-Controllers to confirm the controller supports the desired External Storage Expansion Unit and to select a supported cable. For HDD or other expansion unit options, see the specific expansion unit section.
3. Converts a 35301RU from a 3U rack mount to a tower.
4. The EXP200 includes a single hot-swap 350 W power supply and power cord. Optional hot-swap Netfinity EXP200 350 W Redundant Power Supply (P/N 37L0075) includes an additional power cord.
5. Netfinity FAStT EXP500 Storage Expansion Unit (P/N 35601RU) includes dual hot-swap 350 W power supplies, each with its own power cord.

Internal SCSI Cabling

Netfinity 5500 and 5500 M10 systems contain a backplane supporting six hot-swap drive bays. The backplane is connected to one of the two connectors of the integrated dual-channel ServeRAID controller through a 16-bit SCSI cable. A two-drop 16-bit SCSI cable, with an integrated terminator, is included with the server to support up to two internal removable media devices connected to the second RAID connector or a supported SCSI adapter. Optional Netfinity SCSI Controller Cable (P/N 03K9313) is a 16-bit cable that can be attached to the second RAID connector and routed to the rear panel cutout providing an external 16-bit VHDCI 0.8-mm connector. If internal removable media devices are required in addition to external RAID device attachment, a supported SCSI adapter must be installed using the standard two-drop SCSI cable for device/adapter connection. If connecting narrow devices to this cable, additional 68-pin to 50-pin converters (P/N 32G3925) must be ordered. Some narrow devices include a converter in their ship group.

Netfinity 5500 I/O Options

Part Number	Description	Adapter Length	PCI Support	Slots Supported[1]	Hot-Plug[2]
	Storage Controllers[3]				
01K7364	Netfinity ServeRAID-3L Ultra2 SCSI Adapter[4, 5]	Full	32-bit	1...6	X
37L6086	Netfinity ServeRAID-3HB Ultra2 SCSI Adapter[6]	Full	32/64-bit	1...6	X
02K3454	PCI Fast/Wide Ultra SCSI Adapter	Half	32-bit	1...6	-
09L2123	Advanced SerialRAID/X Adapter	Full	32-bit	1...6[7]	-
	Fibre Storage Controllers and Options[8]				
01K7297	Netfinity Fibre Channel PCI Adapter	Half	32/64-bit	1...6	-
35261RU	Netfinity Fibre Channel RAID Controller Unit	-	-	-	-
01K7296	Netfinity Fibre Channel Failsafe RAID Controller	-	-	-	-
35231RU	Netfinity Fibre Channel Hub	-	-	-	-
00N6881	Netfinity FAStT Host Adapter	Half	32/64-bit	1...6	X
35521RU	Netfinity FAStT500 RAID Controller	-	-	-	-
2109S08	SAN Fibre Channel Switch, 8-Port	-	-	-	-
2109S16	SAN Fibre Channel Switch, 16-Port	-	-	-	-
	Networking[9]				
	Ethernet				
34L1501	Netfinity 10/100 Ethernet PCI Adapter 2	Half	32-bit	1...6	X
08L3341	Netfinity 10/100 Fault Tolerant Adapter	Half	32-bit	1...6	X
34L0301	Netfinity Gigabit Ethernet SX Adapter	Half	32/64-bit	1...6	X
	Token Ring				
34L0501	Token-Ring 100/16/4 High-Speed PCI Adapter	Half	32-bit	1...6	-
34L0601	Token-Ring 16/4 PCI Adapter 2	Half	32-bit	1...6	X
	Communications				
33L4618	PCI V90 56 Data/Fax Modem[10]	Half	32-bit	1...6	-
37L14xx	Serial I/O SST 8, 16 and 128 Port Adapters[11]	Half	32-bit	1...6[11]	-
	Systems Management[12]				
01K7209	Netfinity Advanced System Management PCI Adapter[13]	Full	32-bit	1...6[14]	-
03K9309	Netfinity Advanced System Management Interconnect Cable Kit[15]	-	-	-	-
36L9654	Netfinity Advanced System Management Token-RIng Connection[16]	-	-	-	-
	Host Attach				
9086001	Netfinity ESCON Adapter[17]	Full	32-bit	1...6[18]	-

ISA, Full Length
Slot 1- PCI, Hot- Plug, 32-bit, Full Length
Slot 2- PCI, Hot- Plug, 32-bit, Full Length
Slot 3- PCI, Hot- Plug, 32-bit, Full Length
Slot 4- PCI, Hot- Plug, 32-bit, Full Length
Slot 5- PCI, 32-bit, Primary Bus, Full Length
Slot 6- PCI, 32-bit Primary Bus, Full Length

1. PCI Slots 1, 2, 3 and 4 support Hot Plug devices.
2. Hot Plug capable using IBM's Active PCI Technology.. For Network Operating System support access URL www.ibm.com/pc/us/compat.
3. Netfinity 5500 and 5500 Mxx have a dual channel ServeRAID II Wide Ultra SCSI controller.
4. All ServeRAID-3x adapters can be upgraded with the same enhanced software utilities and firmware included with ServeRAID-3HB.The download is available for no charge from www.ibm.com/pc/support. Select "Server" in Brand pulldown, "ServeRAID" in Family pulldown and then "Downloadable files". The upgrade should be considered for installations with firmware less than Version 3.5.
5. Netfinity ServeRAID-3L Ultra2 SCSI Adapter (P/N 01K7364) provides either one internal or one external (0.8 mm VHDCI) LVDS SCSI channel.
6. Netfinity ServeRAID-3HB Ultra2 SCSI Adapter (P/N 37L6086) provides one internal and 2 external (0.8mm VHDCI) LVDS SCSI channels. The internal channel can be configured for external usage (0.8 mm VHDCI) providing a total of 3 external LVDS SCSI channels. Includes 32 MB of mirrored battery-backup cache which helps protect against data loss in write-back cache mode in the event of a power outage or adapter maintenance
7. A maximum quantity of four is supported.
8. See Netfinity Fibre Array Solutions section for additional configuration information.
9. Netfinity 5500 and 5500 Mxx have an integrated 10/100 PCI Ethernet Controller.
10. Due to homologation variances, modem availability may differ by country.
11. See Appendix E for details on Serial I/O options and configuration limitations. A maximum of four Serial I/O adapters (any combination of P/N 37L1414, 37L1415, 37L1416, 37L1423) may be installed.
12. The Netfinity Advanced System Management Processor and Interconnect Bus integrated into Netfinity 5500 (8660-5...6xU) and 5500 Mxx works with Netfinity Manager to provide significant system management function. When used with optional Netfinity Advanced System Management PCI Adapter (P/N 01K7209) and Netfinity Advanced System Management Interconnect Cable Kit (P/N 03K9309) additional management and control of up to 12 service processors from a remote console through a single modem or LAN connection is possible. Systems managenment options P/N 01K7209, 03K9309 and 36L9654 are NOT supported by Netfinity 5500 models 8660-1...4xU.
13. Includes PCI adapter, Netfinity Advanced Systems Management Interconnect Cable Kit components and 56-watt AC adapter, which requires a separate power source. Provides an integrated 10/100 Ethernet port and a PCMCIA slot to support optional Netfinity Advanced System Management Token-Ring Connection (P/N 36L9654). NOT supported by Netfinity 5500 models 8660-1...4xU.
14. A maximum quantity of one is supported.
15. Required for all Netfinity Servers containing a standard Advanced System Management Processor that are to be interconnected for system management support through a LAN or modem connection (Netfinity 5500 models 8660 1...4xU are not supported). Optional Netfinity Advanced System Management PCI Adapter (P/N 01K7209) includes the contents of this option. Up to 12 service processors may be interconnected (including standard and optional processors) with an aggregate connection length of no more than 91.4 meters (300 ft.). A customer-supplied Ethernet cable is required for each interconnection.
16. Contains an IBM Turbo 16/4 Token-Ring PCI Card, which installs in the PCMCIA card slot of Netfinity Advanced System Management PCI Adapter (P/N 01K7209), and a PC Card to 9-pin D-Shell cable which is routed to a rear chassis cut-out. The Netfinity Advanced System Management PCI Adapter's integrated Ethernet port and Netfinity Advanced System Management Token-Ring Connection cannot be connected or used together.
17. Provides an ESCON MIC and DB9 Serial Port. Cables are not included but are available through S/390 channels. Contact your IBM representative for additional information.
18. A maximum of two 9086001 adapters (installed in non-adjacent slots) are supported in a single Netfinity server.

Netfinity 5500 Power, Monitor & Accessories

Part Number	Description
	Power[1]
01K7951	Netfinity 400 W Hot-Swap Redundant Power Supply II[2]
	Uninterruptible Power Supply (UPS)[3]
94G3136	APC Smart-UPS 1400
94G6674	APC Smart-UPS 1400RMB[4]
94G6676	APC Smart-UPS 3000RMB [4]
37L6861	APC Smart-UPS 5000RMB [5]
	Monitors
65464AN	G54 Color Monitor 15" (348-mm, 13.7" Viewable Image Size), stealth black[6]
65474AN	G74 Color Monitor 17" (403-mm, 15.9" Viewable Image Size), stealth black[6]
6331B2N	E54 Color Monitor 15" (350-mm, 13.8" Viewable Image Size), stealth black[6]
6332J1N	E74 Color Monitor 17" (403-mm, 15.9" Viewable Image Size), stealth black[6]
654841N	G76 Color Monitor 17" (406-mm, 16" Viewable Image Size), stealth black[6]
65494AN	G96 Color Monitor 19" (454-mm, 17.9" Viewable Image Size), stealth black[7]
9513AG1	T55A Flat Panel Color Monitor (381-mm, 15.0" Viewable Image Size), stealth black[8]
9519AG1	T85A Flat Panel Color Monitor (459-mm, 18.1" Viewable Image Size), stealth black[7]
	Cables
03K9313	Netfinity SCSI Controller Cable (0.8 mm)[9]
32G3925	SCSI 68-pin to 50-pin Converter

1. Netfinity 5500 and 5500 M10 include a single 400 W power supply which is sufficient to operate fully configured systems. If power supply redundancy is desired, optional power supply P/N 01K7951 is required.
2. Includes a power cord which requires an additional power source. Even though a second UPS provides a redundant power source, systems management software does not currently take advantage of its power outage alerts.
3. For runtimes and UPS attributes see Appendix C: UPS Runtime Estimate.
4. Height is 3U. See "Rack and NetBAY" for supported IBM racks.
5. Height is 5U. See "Rack and NetBAY" for supported IBM racks.
6. Installation within a rack requires optional Monitor Compartment (P/N 94G7444).
7. Not supported for installation in a 19" rack.
8. Installation within a rack requires optional Netfinity Flat Panel Rack Mount Kit (P/N 37L6857) and Netfinity Rack Keyboard Tray (P/N 28L4707). A space saver keyboard may coexist within the same 28L4707 keyboard tray.
9. Used for routing the second internal SCSI RAID channel to an external 0.8 mm VHDCI connector . Can be used with IBM .8 mm to 68-pin SCSI Adapter (P/N 01K8017) to provide an external 68-pin high density connector.

Part Number	Description
	Conversion Kits
37L6860	Netfinity 8Ux24D Rack-to-Tower Kit[1]
01K8021	Netfinity 5500 Rack-to-Tower Kit[2]
37L6859	Netfinity 8Ux24D Tower-to-Rack Kit[9]
01K8020	Netfinity 5500 Tower-to-Rack Kit
	Rack and NetBAY[3]
930842P	Netfinity Enterprise Rack
930842X	Netfinity Enterprise Expansion Cabinet
9306900	Netfinity Rack
9306200	Netfinity NetBAY22
10L6912	Netfinity NetBAY3[4]
10L6913	Netfinity Caster Set
	Keyboard and Mouse[5]
28L3644	Space Saver II Keyboard[6,8]
01K1260	TrackPoint IV 104-Key Black Keyboard[7,8]
28L3621	Preferred Keyboard (stealth black)[7]
28L3673	Sleek 2-Button Stealth Black Mouse

1. Includes one Netfinity NetBAY3 with casters. Planned replacement for Netfinity 5500 Rack-to-Tower Kit (P/N 01K8021).
2. Includes one Netfinity NetBAY3 with skid pads. Optional casters (P/N 10L6913) are available.
3. Netfinity 5500 and 5500 Mxx rack models are housed in a 19" rack mountable drawer and require one of the racks listed here.Tower models include a single NetBAY3 with skid pads. Optional casters (P/N 10L6913) are available. See IBM Netfinity Rack Cabinet and Options section for IBM rack NetBAY3 with skid pads.Optional casters (P/N 10L6913) are available. See IBM Netfinity Rack supported devices.
4. A maximum of three NetBAY3 enclosures (including the standard one) may be stacked beneath a supported Netfinity tower server. Casters are not included. See IBM Netfinity NetBAY3 Stackable Enclosure section for supported devices.
5. Tower models include both a mouse and keyboard. Rack models include neither.
6. Installation within a rack requires optional keyboard tray P/N 28L4707 (stows in "ready-to-use" position).
7. Installation within a rack requires optional keyboard tray P/N 28L4707. This keyboard cannot share a keyboard tray with a flat panel display.
8. Advanced TrackPoint IV features are not available on IBM Netfinity systems.
9. Planned replacement for Netfinity 5500 Tower-to-Rack Kit (P/N 01K8020).

Netfinity 5500 Tape Options

Part Number	Description	Bays Supported	SCSI Interface (bit)	Form Factor	Termination Included	68/50- pin Converter Incl.	Ext. Tape Encl.[1]
01K1282	12/24 GB DDS/3 4-mm Internal Tape Drive	A, B	8	89 mm (3.5") HH or 133 mm (5.25") HH	Y[2]	Y	3510020
00N7991	20/40 GB DDS/4 4-mm Internal Tape Drive	A,B	16 Ultra2 LVD	89 mm (3.5") HH or 133 mm (5.25") HH	Y[2]	N	3510020, 3551001
01K1325	20/40 GB 8-mm Internal SCSI Tape Drive	A, B	16	133 mm (5.25") HH	N[3]	N	3551001 3510020[4]
01K1320	20/40 GB DLT Internal SCSI Tape Drive	A/B[5]	8	133 mm (5.25") FH	Y[6]	Y	3503B0X, 3551001
04K0149	35/70 GB DLT Internal SCSI Tape Drive	A/B[5]	16	133 mm (5.25") FH	N[3]	N	3503B0X[4], 3551001
00N7990	40/80 GB DLT Internal SCSI Tape Drive	A/B[5]	16 Ultra2 LVD	133 mm (5.25") FH	N[3]	N	3503B0X[4], 3551001
	Associated Options						
32G3918	SCSI-2 16-bit Active Terminator	-	16	External	Y	N	3510020, 3503B0X
	External Tape Enclosures						
3510020	External Half High SCSI Storage Enclosure[7]	-	8/16	Desktop	N	N	-
3551001	NetMEDIA Storage Expansion Unit EL[8]	-	16	Rack	Y	N	-
10L7113	NetMEDIA Systems Management Adapter[9]	-	16 LVD	-	N	N	3551001
3503B0X	DLT External SCSI Enclosure[10]	-	16	Desktop	N	N	-
	External Tape Libraries[11]						
3502108	DLT Tape Autoloader	-	16	Desktop	Y	-	-
3502x14	DLT Tape Library	-	16	Desktop or Rack	Y	-	-
3570xxx	Magstar MP 3570 Tape Subsystem (models B2x and C2x)	-	Diff.	Rack	Y	-	-

1. To determine cable requirements, note the tape drive's SCSI interface, the appropriate SCSI controller from the system configurator section, and the desired enclosure and then refer to Appendix D: Cables - Storage Units - Controllers.
2. Tape drive is capable of self termination.
3. Termination is provided by the system unit's standard SCSI cabling.
4. Requires SCSI-2 16-bit Active Terminator (P/N 32G3918).
5. Two Half-High (HH) bays can be combined to support a single Full-High (FH) device.
6. A 16-bit terminator is included for attachment to an internal cable.
7. Provides a black desktop 5.25" half-high (HH) tape enclosure. Connector is configurable as 50-pin Centronix or 68-pin high density. Requires either tape drive self termination or SCSI-2 16-bit Active Terminator (P/N 32G3918).
8. Provides a black 3U, 19" rack or NetBAY3 mountable tape enclosure. Provides two full high (FH) or four half high (HH) extended length 5.25" bays. External connector is 0.8-mm VHDCI. Includes two power supplies and two power cords.
9. Installs in a 3551001. Provides repeater function and LVDS interface allowing longer cable lengths and auto-termination when the 3551001 is powered off.
10. Provides a black desktop DLT tape enclosure with a 68-pin high density external connector. Requires termination by the tape drive or by installation of a SCSI-2 16-bit Active Terminator (P/N 32G3918).
11. Tape library attributes and prerequisites are located in Appendix B: Tape Library Attributes.

NOTE: SCSI support for tape drives is provided by system unit onboard (standard) controller (no-RAID function) or PCI Fast Wide Ultra SCSI Adapter P/N 02K3454. Additional tape attributes can be found in Appendix A: Tape Drive Attributes.

Sample Configurations

Note: The following sample configurations are for illustration only and may not be suitable for any specific customer installation. Contact your IBM Business Partner or IBM Marketing Representative for assistance with your specific configuration requirements.

High Availability

Part Number	Description	Quantity	Usage
8660-72U	Netfinity 5500 (Pentium III 550/128 MB, Tower & NetBAY3)	1	
01K8053	Netfinity 9.1 GB Wide Ultra SCSI SCA-2 SL HDD	6	NOS-mirrored, Data-RAID 5
01K1320	20/40 GB DLT Internal SCSI Tape Drive	1	
7852400	External V.34 Data/Fax Modem	1	Remote Management
01K7951	Netfinity 400 W Hot-swap Redundant Power Supply II	1	
10L6912	Netfinity NetBAY3	1	Enclosure for second UPS
94G6674	APC Smart-UPS 1400RMB[1]	2	Redundant UPSs
65464AN	G54 Color Monitor 15" (348 mm, 13.7" Viewable Image Size), stealth black	1	

1. Even though a second UPS provides a redundant power source, systems management software does not currently take advantage of its power outage alerts.

This tower server is configured to act as the foundation for business critical applications, applications your business cannot afford to be without. Configured with enough disk drives to mirror the operating system and provide a standard RAID 5 environment for data, optional hot-swap redundant power, redundant UPSs for power even during a blackout or in the event of a UPS or power cord failure, this server represents the leading edge in high availability. An internal tape drive is included to back-up that all important asset.... data, and a modem is included to allow out-of-band (non-LAN) system management utilizing the Netfinity Advanced System Management Processor.

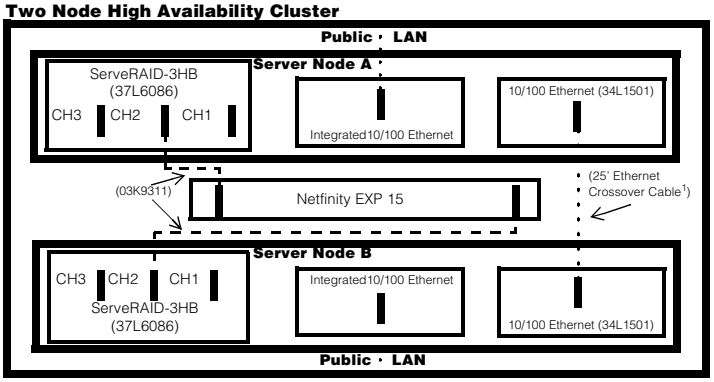
Web Server

Part Number	Description	Quantity	Usage
8660-61U	Netfinity 5500 (Pentium III 500/128 MB, Tower & NetBAY3)	1	-
01K8023	128 MB SDRAM ECC DIMM	3	Total Memory: 512 MB
36L9806	Netfinity 9.1 GB 10K-3 Wide Ultra SCSI Hot-Swap SL HDD	6	RAID 5 Data Storage
footnote 1	High Speed ISDN connection[1]	1	Connection to Web
01K1320	20/40 GB DLT Internal SCSI Tape Drive	1	-
02K3454	PCI Fast/wide Ultra SCSI Adapter	1	Tape Controller
03K9313	Netfinity SCSI Controller Cable	1	Provides external RAID
10L6912	Netfinity NetBAY3	1	Enclosure for EXP15
35202RU	Netfinity EXP15	1	Provides additional 10 Bays
36L9809	Netfinity EXP 9.1 GB 10K-3 Wide Ultra SCSI Hot-Swap HDD	5	RAID 5 Data Storage
03K9310	Netfinity 2M Ultra2 SCSI Cable	1	Attaches EXP15 to 03K9313
01K7951	Netfinity 400 W Hot-Swap Redundant Power Supply II	1	-
94G6676	APC Smart-UPS 3000RMB[2]	2	Redundant UPSs
65464AN	G54 Color Monitor 15" (348 mm, 13.7" Viewable Image Size), stealth black	1	-

1. Select from ServerProven options found on the Web at URL www.ibm.com/pc/us/compat. Warranty and service for third party ServerProven products is provided for by the manufacturer, not IBM.
2. Even though a second UPS provides a redundant power source, systems management software does not currently take advantage of its power outage alerts.

This tower model is configured as the perfect Web presence for a company ready for eBusiness. With enough disk storage to host a large sales catalog, an optional hot-swap power supply and UPS so that your server is ready when your customers are ready to order, and an ISDN adapter to allow for a speedy connection into the Web infrastructure, on top of all the integrated high-availability features make this the ideal server for electronic commerce.

Two Node High Availability Cluster



1.Customer supplied Ethernet Crossover Cable may vary in length up to a maximum of 25' (7.6 m).

Two Node High Availability Cluster

Part Number	Description	Quantity	Usage
	Server Nodes A & B		
8660-7SU	Netfinity 5500 (Pentium III 550/256 MB, Rack) (8U)	2	-
33L5112	Netfinity 550/512 KB Upgrade with Pentium III Processor	2	Dual SMP Processing
01K8053	Netfinity 9.1 GB Wide Ultra SCSI SCA-2 SL HDD	4	NOS on mirrored HDD's
37L6086	Netfinity ServeRAID-3HB Ultra2 SCSI Adapter[2]	2	3 channels for EXP15's
34L1501	Netfinity 10/100 Ethernet PCI Adapter 2[1]	2	Private Interconnect
00N7990	40/80 GB DLT Internal SCSI Tape Drive	1	
02K3454	PCI Fast/Wide Ultra SCSI Adapter	1	Tape Drive Controller
7852400	External V.34 Data/Fax Modem	2	Remote Management
01K7951	Netfinity 400 W Hot-Swap Redundant Power Supply II	2	-
94G6676	APC Smart-UPS 3000RMB (3U)	2	-
	Storage Expansion Unit		
35202RU	Netfinity EXP15[2] (3U)	1	-
01K7959	Netfinity EXP10 9.1GB Wide Ultra SCSI SCA-2 HDD[2]	5	RAID 5 Shared Storage
03K9311	Netfinity 4.2M Ultra2 SCSI Cable[2]	2	Attach EXP15 to Servers
	Shared (or single occurrence) Resources		
9513AG1	T55A Flat Panel Color Monitor (381 mm, 15" Viewable Image Size), stealth black	1	Mounts in keyboard tray
28L3644	Space Saver II Keyboard	1	-
	Industry Standard 19" Rack, EIA-310D, Min. depth of 28"		
9306900	9306-900 Netfinity Rack	1	-
28L4707	Netfinity Rack Keyboard Tray	1	-
37L6857	Netfinity Flat Panel Monitor Rack-Mount Kit (3U)	1	Mounts in keyboard tray (3U)
28L0542	Netfinity Console Server Selector Switch (4-port)	1	-
94G6667	Power Cable-Type A14[3]	3	-
94G7447	12ft. Console Cable Set	2	-
94G6669	Side Panel Kit	1	-
94G6670	Blank Filler Kit	2	-

1. Requires customer supplied Ethernet Crossover Cable which may vary in length up to a maximum of 25' (7.6 m).
2. By replicating these items, up to a total quantity of four ServeRAID-3HB Adapters (plus options) and eleven EXP15s can provide over 2 Terabytes of storage. Additional power and Rack space will be required.
3. Cable length requirements are dependant on component placement within the rack or rack suite. To determine specific configuration requirements use the Netfinity Rack Configurator which is downloadable from Web site www.ibm.com/pc/us/netfinity/tech_library.html "Configuration Tools".

Clustering is a group of interconnected computers used as a single, unified computing resource. Clustering Netfinity servers, like the IBM Netfinity 5500, provides a high availability solution to keep you in touch with the key applications you need to run your business.

This sample configuration consists of paired IBM Netfinity 5500 cluster nodes equipped with two-way SMP capability and redundant power supplies. Microsoft Cluster Service (MSCS) has been validated on IBM Netfinity 5500 servers, using the IBM ServeRAID-3HB with the EXP15 Storage Expansion Unit. MSCS allows two configured servers, referred to as nodes, to be connected together to form a cluster. Providing system redundancy means that a complete server can fail and client access to server resources is largely unaffected. MSCS extends this theme by also allowing for software failures at an application level as well as an operating system level. If the operating system fails, all applications and services can be restarted on another server, and if just one application fails, it can be managed by MSCS individually. An additional independent network connection is used to perform monitoring within the cluster. One or more disk subsystems are attached to both nodes. In the above example, a Netfinity EXP15 was selected and the IBM ServeRAID-3HB Ultra2 SCSI Adapters provide the I/O control. Netfinity ServeRAID-3HB handles the "SCSI heartbeat" connection without the need for a dedicated SCSI connection and logically attaches the quorum disk, which allows arbitration when a failure occurs. Additional information on IBM Netfinity and IBM PC Server Clustering Solutions may be found on the World Wide Web by accessing URL www.ibm.com/pc/us/netfinity/clustering.html.

IBM Netfinity 5500 M10 Configurator

Part Number	Withdrawal Date (mmddyy)[7]	Processor Speed (MHz)	Number of Processors (Std/Max)	L2 ECC Cache. (KB)	Memory (Std/Max) (R = RDIMM)[2]	Form Factor	Power Supply Quantity (Std/Max)	Hot-Swap (Power, Slots, HDD, Fans)	Redundancy (Optional, Standard)	Adv. System Management Processor	Onboard Ethernet (Mbps)	SCSI Controller (Dual, Ultra, RAID)	Removable Media Bays (Total/Avail)	Internal Hard Disk Drive (Std/Max)	CD-ROM (IDE)	Bays: (Total/Avail)	Slots: (Total/Avail)
8661-51Y	042800	550[6]	1/2	512	256 MB (R)/2 GB	Tower[3]	1/2	P, S,H,F	S-Fans, O-Power	Y	10/100	D,R	4/2	0/109 GB[4]	32X-14X[5]	10/8	7/7
8661-5RY[1]	042800	550[6]	1/2	512	256 MB (R)/2 GB	Rack (8U)	1/2	P, S,H,F	S-Fans, O-Power	Y	10/100	D,R	4/2	0/109 GB	32X-14X[5]	10/8	7/7

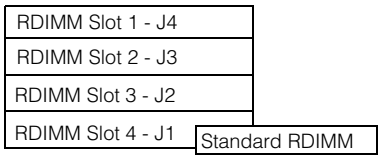
1. Housed in a 19" Rack mountable drawer and ships standard without a keyboard or mouse. See "Rack and NetBAY" under "Netfinity 5500 M10 Power, Monitor & Accessories" for supported IBM racks.
2. All memory is 100 MHz ECC SDRAM Registered DIMMs (RDIMMs) and is compatible with Netfinity Four-Way Processor Upgrade Kit (P/N 28L1014) which increases the maximum memory to 4 GB.
3. Tower models come equipped with a single NetBAY3, 3U stackable enclosure. Up to a maximum of three are supported.
4. With a single Netfinity EXP15 installed in the standard NetBAY3, the maximum internal storage increases by 364 MB.
5. Variable read rate. Actual playback speed will vary and is often less than the maximum possible.
6. Intel Pentium III Xeon processor.
7. Not available from IBM after this date. Business Partner inventory may be available.

Netfinity 5500 M10 Processor Upgrades

Part Number	Processor Upgrades with 512 KB or 1 MB Cache	SMP Support[1]	Processor Speed/ Cache Upgrade[2]	Upgrade 28L1014 Compatible
01K7264	Netfinity 5500 400 MHz/512 KB Upgrade with Pentium II Xeon Processor	All 1xY	-	-
10L5894	Netfinity 5500 400 MHz/1 MB Upgrade with Pentium II Xeon Processor	All 2xY	All 1xY	-
10L5901	Netfinity 5500 450 MHz/512 KB Upgrade with Pentium II Xeon Processor	All 3xY	All 1...2xY	X
10L5902	Netfinity 5500 450 MHz/1 MB Upgrade with Pentium II Xeon Processor	All 4xY	All 1...3xY	X
33L5107	Netfinity 550 MHz/512 KB Upgrade with Pentium III Xeon Processor	All 5xY	All 1...4xY	X
28L1014	Netfinity Four-Way Processor Upgrade Kit[3, 4]	-	All	-

1. One additional processor may be installed, providing a maximum of two. All processors must be identical in type, speed and cache size.
2. Requires removal of the standard processor. A maximum of two processors may be installed. All processors must be identical in type, speed and cache size. Upgrades may require a BIOS update. To obtain the latest Flash BIOS, access www.ibm.com/pc/support and enter machine "Type-Model" in Quick Path. Select "Downloadable files" and then "BIOS".
3. Provides required components for upgrading an IBM Netfinity 5500 or 5500 M10 to a 4-way SMP capable system. Installation of P/N 28L1014 prevents the use of PCI slot 6 and shortens slot 5 to Half Length. Installation must be performed by an IBM trained servicer or IBM Customer Engineer and is included in the purchase price. Key components include: memory card (4 GB capacity), processor card assembly, power backplane, 500W power supply, assorted cables, led card, and chassis hardware. Components that are NOT included and must be ordered separately: processors, additional memory and 500 W redundant power supply. Optional processors supported by the four-way upgrade kit are indicated by an "X" in the column titled "Upgrade 28L1014 Compatible".
4. Processors from 8661-3xY and 8661-4xY are supported for use with upgrade kit P/N 28L1014. All others must be replaced when the upgrade kit is installed. Refer to Netfinity 5500 M20 configurator for option compatibility with any 5500 or 5500 M10 containing upgrade P/N 28L1014. A maximum of four processors may be installed. All processors must be identical in type, speed and cache size. Upgrades may require a BIOS update. To obtain the latest Flash BIOS, access www.ibm.com/pc/support and enter machine "Type-Model" in Quick Path. Select "Downloadable files" and then "BIOS".

Netfinity 5500 M10 Memory



Part Number	Memory Description
01K7262	Netfinity 128 MB SDRAM ECC RDIMM[1]
01K8043	Netfinity 256 MB SDRAM ECC RDIMM[1]
01K7263	Netfinity 512 MB SDRAM ECC RDIMM[1]

1. RDIMMs must be installed in sequence beginning with Slot 4 (J1) and ordered from largest to smallest.

Total Memory	Models 8661-1...4xY	Models 8661-5xY
128 MB	128 MB RDIMM Standard	-
256 MB	1 x 01K7262	256 MB RDIMM Standard
384 MB	1 x 01K8043	1 x 01K7262
512 MB	1 x 01K7262, 1 x 01K8043	1 x 01K8043
640 MB	1 x 01K7263 or 2 x 01K8043[2]	1 x 01K7262, 1 x 01K8043
768 MB	(1 x 01K7262, 1 x 01K7263) or (1 x 01K7262, 2 x 01K8043)[2]	1 x 01K7263 or 2 x 01K8043[2]
896 MB	(1 x 01K8043, 1 x 01K7263) or 3 x 01K8043[2]	(1 x 01K7262, 1 x 01K7263) or (1 x 01K7262, 2 x 01K8043)[2]
1024 MB	2 x 01K7263 or 4 x 01K8043[1,2]	(1 x 01K8043, 1 x 01K7263) or 3 x 01K8043[2]
1280 MB	1 x 01K7262 or 2 x 01K7263	2 x 01K7263 or (2 x 01K8043, 1 x 01K7263)[2]
1408 MB	1 x 01K8043, 2 x 01K7263	1 x 01K7262, 2 x 01K7263
1664 MB	3 x 01K7263	-
1792 MB	-	3 x 01K7263
2048 MB (max)	4 x 01K7263[1]	4 x 01K7263[1]

This table does not represent all possible memory configurations.
1. Replace standard RDIMM.
2. Memory modules may vary in price per MB. Selection of smaller RDIMMs may provide a more cost-effective alternative to using the largest RDIMMs and should be considered when anticipated future memory is 1 GB or less.

Netfinity 5500 M10 Hard Disk Drive (HDD) Storage

Total Int. Storage[1]	7200 RPM Hard Disk Drives (HDDs)			10,000 RPM Hard Disk Drives (HDDs)		
	9.1 GB	18.2 GB	36.4 GB	9.1 GB	18.2 GB	36.4 GB
0 GB	Standard on Base Models			Standard on Base Models		
9.1 GB	1 x 01K8053	-	-	1 x 36L9806	-	-
18.2GB	2 x 01K8053 or	1 x 02K0440		2 x 36L9806 or	1 x 36L9807	-
27.2 GB	3 x 01K8053	-	-	3 x 36L9806	-	-
36.4 GB	4 x 01K8053 or	2 x 02K0440 or	1 X 02K0441	4 x 36L9806 or	2 x 36L9807or	1 x 36L9808
45.5 GB	5 x 01K8053	-	-	5 x 36L9806	-	-
54.6GB	6 x 01K8053 or	3 x 02K0440	-	6 x 36L9806 or	3 x 36L9807	-
72.8 GB	-	4 X 02K0440 or	2 X 02K0441	-	4 x 36L9807 or	2 x 36L9808
91 GB	-	5 X 02K0440	-	-	5 x 36L9807	-
109 GB (max)	-	6 X 02K0440 or	3 X 02K0441	-	6 x 36L9807 or	3 x 36L9808

This table does not represent all possible hard drive configurations.
1. Total internal storage listed is within ± 0.2 GB unless otherwise noted.

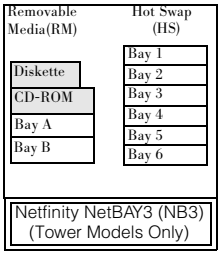
Bay	Form Factor	Height	Front Access	Usage
-	89 mm (3.5")	SL	Yes	Diskette
-	133 mm (5.25")	HH	Yes	IDE CD-ROM
A	133 mm (5.25")	HH[1]	Yes	Open
B	133 mm (5.25")	HH[1]	Yes	Open
1...6	HS	SL[2]	Yes	Open
NB3[3]	19" Rack	3U	Yes	Open

1. Two half-high (HH) bays can be combined to support a single full-high device.
2. Two slim-line (SL) bays can be combined to support a single half-high device.
3. One NetBAY3 is included with tower models and a total of three are supported. See IBM Netfinity NetBAY3 Stackable Enclosure section for supported devices.

Part Number	Description	RPM	Height	Bays Supported	Max. Qty.
Internal Hard Disk Drives (HDD)					
01K8053	Netfinity 9.1 GB Wide Ultra SCSI SCA-2 SL HDD	7200	SL	1...6	6
02K0440	Netfinity 18.2 GB Wide Ultra SCSI Hot-Swap SL HDD	7200	SL	1...6	6
02K0441	Netfinity 36.4 GB Wide Ultra SCSI Hot-Swap HDD	7200	HH[1]	1/2, 3/4, 5/6	3
36L9806	Netfinity 9.1 GB 10K-3 Wide Ultra SCSI Hot-Swap SL HDD	10,000	SL	1...6	6
36L9807	Netfinity 18.2 GB 10K-3 Wide Ultra SCSI Hot-Swap SL HDD	10,000	SL	1...6	6
36L9808	Netfinity 36.4 GB 10K-3 Wide Ultra SCSI Hot-Swap HDD	10,000	HH[1]	1/2, 3/4, 5/6	3

External Storage Expansion Units[2]		Form Factor
35202RU	Netfinity EXP15 Storage Expansion Unit	Rack (3U)
35301RU	Netfinity EXP200 Storage Expansion Unit	Rack (3U
37L5857	Netfinity EXP200 Rack-to-Tower Conversion Kit[3]	Tower
37L0075	Netfinity EXP200 350 W Redundant Power Supply[4]	-
35601RU	Netfinity FAStT EXP500 Storage Expansion Unit[5]	Rack (3U)

1. Two slim-line (SL) bays can be combined to support a single half-high (HH) device.
2. Supported by the onboard external SCSI port (requires Netfinity SCSI Controller Cable P/N 03K9313). Select the onboard or optional SCSI controller then refer to Appendix D: Cables-Storage Units-Controllers to confirm the controller supports the desired External Storage Expansion Unit and to select a supported cable. For HDD or other expansion unit options, see the specific expansion unit section.
3. Converts a 35301RU from a 3U rack mount to a tower.
4. The EXP200 includes a single hot-swap 350 W power supply and power cord. Optional hot-swap Netfinity EXP200 350 W Redundant Power Supply (P/N 37L0075) includes an additional power cord.
5. Netfinity FAStT EXP500 Storage Expansion Unit (P/N 35601RU) includes dual hot-swap 350 W power supplies, each with its own power cord.



Internal SCSI Cabling

Netfinity 5500 and 5500 M10 systems contain a backplane supporting six hot-swap drive bays. The backplane is connected to one of the two connectors of the integrated dual-channel ServeRAID controller through a 16-bit SCSI cable. A two-drop 16-bit SCSI cable, with an integrated terminator, is included with the server to support up to two internal removable media devices connected to the second RAID connector or a supported SCSI adapter. Optional Netfinity SCSI Controller Cable (P/N 03K9313) is a 16-bit cable that can be attached to the second RAID connector and routed to the rear panel cutout providing an external 16-bit VHDCI 0.8 mm connector. If internal removable devices are required in addition to external RAID device attachment, a supported SCSI adapter must be installed using the standard two-drop SCSI cable for device/adapter connection. If connecting narrow devices to this cable, additional 68-pin to 50-pin converters (P/N 32G3925) must be ordered. Some narrow devices include a converter in their ship group.

Netfinity 5500 M10 I/O Options

Part Number	Description	Adapter Length	PCI Support	Slots Supported[1]	Hot-Plug[2]
	Storage Controllers[3]				
01K7364	Netfinity ServeRAID-3L Ultra2 SCSI Adapter[4, 5]	Full	32-bit	1...6	X
37L6086	Netfinity ServeRAID-3HB Ultra2 SCSI Adapter[6]	Full	32/64-bit	1...6	X
02K3454	PCI Fast/Wide Ultra SCSI Adapter	Half	32-bit	1...6	-
09L2123	Advanced SerialRAID/X Adapter	Full	32-bit	1...6[7]	-
	Fibre Storage Controllers and Options[8]				
01K7297	Netfinity Fibre Channel PCI Adapter	Half	32/64-bit	1...6	-
35261RU	Netfinity Fibre Channel RAID Controller Unit	-	-	-	-
01K7296	Netfinity Fibre Channel Failsafe RAID Controller	-	-	-	-
35231RU	Netfinity Fibre Channel Hub	-	-	-	-
00N6881	Netfinity FAStT Host Adapter	Half	32/64-bit	1...6	X
35521RU	Netfinity FAStT500 RAID Controller	-	-	-	-
2109S08	SAN Fibre Channel Switch, 8-Port	-	-	-	-
2109S16	SAN Fibre Channel Switch, 16-Port	-	-	-	-
	Networking[9]				
	Ethernet				
34L1501	Netfinity 10/100 Ethernet PCI Adapter 2	Half	32-bit	1...6	X
08L3341	Netfinity 10/100 Fault Tolerant Adapter	Half	32-bit	1...6	X
34L0301	Netfinity Gigabit Ethernet SX Adapter	Half	32/64-bit	1...6	X
	Token Ring				
34L0501	Token-Ring 100/16/4 High-Speed PCI Adapter	Half	32-bit	1...6	-
34L0601	Token-Ring 16/4 PCI Adapter 2	Half	32-bit	1...6	-
	Communications				
33L4618	PCI V.90 56 Data/Fax Modem[10]	Half	32-bit	1...6	-
37L14xx	Serial I/O SST 8, 16 and 128 Port Adapters[11]	Half	32-bit	1...6[12]	-
	Systems Management[12]				
01K7209	Netfinity Advanced System Management PCI Adapter[13]	Full	32-bit	1...6[14]	-
03K9309	Netfinity Advanced System Management Interconnect Cable Kit[15]	-	-	-	-
36L9654	Netfinity Advanced System Management Token-Ring Connection[16]	-	-	-	-
	Host Attach				
9086001	Netfinity ESCON Adapter[17]	Full	32-bit	1...6[18]	-

ISA, Full Length	Slot 1- PCI, Hot- Plug, 32-bit, Full Length	Slot 2- PCI, Hot- Plug, 32-bit, Full Length	Slot 3- PCI, Hot- Plug, 32-bit, Full Length	Slot 4- PCI, Hot- Plug, 32-bit, Full Length	Slot 5- PCI, 32-bit, Primary Bus, Full Length	Slot 6- PCI, 32-bit Primary Bus, Full Length

1. PCI Slots 1, 2, 3 and 4 support Hot Plug devices.
2. Hot Plug capable using IBM's Active PCI technology.. For Network Operating System support access URL www.ibm.com/pc/us/compat.
3. Netfinity 5500 and 5500 Mxx have a dual-channel ServeRAID II Wide Ultra SCSI controller.
4. All ServeRAID-3x adapters can be upgraded with the same enhanced software utilities and firmware included with ServeRAID-3HB. The download is available for no charge from www.ibm.com/pc/support. Select "Server" in Brand pulldown, "ServeRAID" in Family pulldown and then "Downloadable files". The upgrade shouold be considered for installations with firmware less than Version 3.5.
5. Netfinity ServeRAID-3L Ultra2 SCSI Adapter (P/N 01K7364) provides either one internal or one external (0.8 mm VHDCI) LVDS SCSI channel.
6. Netfinity ServeRAID-3HB Ultra2 SCSI Adapter (P/N 37L6086) provides one internal and two external (0.8 mm VHDCI) LVDS SCSI channels. The internal channel can be configured for external usage (0.8 mm VHDCI) providing a total of three external LVDS SCSI channels. Includes 32 MB of mirrored battery-backup cache, which helps protect against data loss in write-back cache mode in the event of a power outage or adapter maintenance.
7. A maximum quantity of four is supported.
8. See Netfinity Fibre Array Solutions section for additional configuration information.
9. Netfinity 5500 and 5500 Mxx have an integrated 10/100 PCI Ethernet Controller.
10. Due to homologation variances, modem availability may differ by country.
11. See Appendix E for details on Serial I/O options and configuration limitations. A maximum of four Serial I/O adapters (any combination of P/N 37L1414, 37L1415, 37L1416, 37L1423) may be installed.
12. The Netfinity Advanced System Management Processor and Interconnect Bus integrated into Netfinity 5500 (8660-5...6xU) and 5500 Mxx works with Netfinity Manager to provide significant system management function. When used with optional Netfinity Advanced System Management PCI Adapter (P/N 01K7209) and Netfinity Advanced System Management Interconnect Cable Kit (P/N 03K9309) additional management and control of up to12 service processors from a remote console through a single modem or LAN connection is possible. Systems management options P/N 01K7209, 03K9309, and 36L9654 are NOT supported by Netfinity 5500 models 8660-1...4xU.

13. Includes PCI adapter, Netfinity Advanced Systems Management Interconnect Cable Kit components and 56-watt AC adapter, which requires a separate power source. Provides an integrated 10/100 Ethernet port and a PCMCIA slot to support optional Netfinity Advanced System Management Token-Ring Connection (P/N 36L9654). NOT supported by Netfinity 5500 models 8660-1...4xU.
14. A maximum quantity of one is supported.
15. Required for all Netfinity Servers containing a standard Advanced System Management Processor that are to be interconnected for system management support through a LAN or modem connection (Netfinity 5500 models 8660 1...4xU are not supported). Optional Netfinity Advanced System Management PCI Adapter (P/N 01K7209) includes the contents of this option. Up to 12 service processors may be interconnected (including standard and optional processors) with an aggregate connection length of no more than 91.4 meters (300 ft.). A customer-supplied Ethernet cable is required for each interconnection.
16. Contains an IBM Turbo 16/4 Token-Ring PCI Card, which installs in the PCMCIA card slot of Netfinity Advanced System Management PCI Adapter (P/N 01K7209), and a PC Card to 9-pin D-Shell cable which is routed to a rear chassis cut-out. The Netfinity Advanced System Management PCI Adapter's integrated Ethernet port and Netfinity Advanced System Management Token-Ring Connection cannot be connected or used together.
17. Provides an ESCON MIC and DB9 Serial Port. Cables are not included but are available through S/390 channels. Contact your IBM representative for additional information.
18. A maximum of two 9086001 adapters (installed in non-adjacent slots) are supported in a single Netfinity server.

Netfinity 5500 M10 Power, Monitor & Accessories

Part Number	Description
	Power[1]
01K7951	Netfinity 400 W Hot-Swap Redundant Power Supply II[2]
	Uninterruptible Power Supply (UPS)[3]
94G3136	APC Smart-UPS 1400
94G6674	APC Smart-UPS 1400 RMB[4]
94G6676	APC Smart-UPS 3000 RMB[4]
37L6861	APC Smart-UPS 5000 RMB[5]
	Monitors
65464AN	G54 Color Monitor 15" (348-mm, 13.7" Viewable Image Size), stealth black[6]
65474AN	G74 Color Monitor 17" (403-mm, 15.9" Viewable Image Size), stealth black[6]
6331B2N	E54 Color Monitor 15" (350-mm, 13.8" Viewable Image Size), stealth black[6]
6332J1N	E74 Color Monitor 17" (403-mm, 15.9" Viewable Image Size), stealth black[6]
654841N	G76 Color Monitor 17" (406-mm, 16" Viewable Image Size), stealth black[6]
65494AN	G96 Color Monitor 19" (454-mm, 17.9" Viewable Image Size), stealth black[7]
9513AG1	T55A Flat Panel Color Monitor (381-mm, 15.0" Viewable Image Size), stealth black[8]
9519AG1	T85A Flat Panel Color Monitor (459-mm, 18.1" Viewable Image Size), stealth black[7]
	Cables
03K9313	Netfinity SCSI Controller Cable (0.8 mm)[9]
32G3925	SCSI 68-pin to 50-pin Converter

1. Netfinity 5500 and 5500 M10 include a single 400W power supply which is sufficient to operate fully configured systems. If power supply redundancy is desired, optional power supply P/N 01K7951 is required.
2. Includes a power cord which requires an additional power source. Even though a second UPS provides a redundant power source, systems management software does not currently take advantage of its power outage alerts.
3. For runtimes and UPS attributes see Appendix C: UPS Runtime Estimate.
4. Height is 3U. See "Rack and NetBAY" for supported IBM racks.
5. Height is 5U. See "Rack and NetBAY" for supported IBM racks.
6. Installation within a rack requires optional Monitor Compartment (P/N 94G7444).
7. Not supported for installation in a 19" rack.
8. Installation within a rack requires optional Netfinity Flat Panel Monitor Rack Mount Kit (P/N 37L6857) and Netfinity Rack Keyboard Tray (P/N 28L4707). A space saver keyboard may coexist within the same 28L4707 keyboard tray.
9. Used for routing the second internal SCSI RAID channel to an external .8 mm VHDCI connector. Can be used with IBM .8 mm to 68-pin SCSI Adapter (P/N 01K8017) to provide an external 68-pin high density connector.

Part Number	Description
	Conversion Kits
37L6860	Netfinity 8Ux24D Rack-to-Tower Kit[1]
01K8021	Netfinity 5500 Rack-to-Tower Kit[2]
37L6859	Netfinity 8Ux24D Tower-to-Rack Kit[9]
01K8020	Netfinity 5500 Tower-to-Rack Kit
	Rack and NetBAY[3]
930842P	Netfinity Enterprise Rack
930842X	Netfinity Enterprise Expansion Cabinet
9306900	Netfinity Rack
9306200	Netfinity NetBAY22
10L6912	Netfinity NetBAY3[4]
10L6913	Netfinity Caster Set
	Keyboard and Mouse[5]
28L3644	Space Saver II Keyboard[6,8]
01K1260	TrackPoint IV 104-Key Black Keyboard[7,8]
28L3621	Preferred Keyboard (stealth black)[7,6]
28L3673	Sleek 2-Button Stealth Black Mouse

1. Includes one Netfinity NetBAY3 with casters. Planned replacement for Netfinity 5500 Rack-to-Tower Kit (P/N 01K8021).
2. Includes one Netfinity NetBAY3 with skid pads. Optional casters (P/N 10L6913) are available.
3. Netfinity 5500 and 5500 Mxx rack models are housed in a 19" rack mountable drawer and require one of the racks listed here.Tower models include a single NetBAY3 with skid pads. Optional casters (P/N 10L6913) are available. See IBM Netfinity Rack Cabinet and Options section for IBM rack NetBAY3 with skid pads.Optional casters (P/N 10L6913) are available. See IBM Netfinity Rack supported devices.
4. A maximum of three NetBAY3 enclosures (including the standard one) may be stacked beneath a supported Netfinity tower server. Casters are not included. See IBM Netfinity NetBAY3 Stackable Enclosure section for supported devices.
5. Tower models include both a mouse and keyboard. Rack models include neither.
6. Installation within a rack requires optional keyboard tray P/N28L4707 (stows in "ready-to-use" position).
7. Installation within a rack requires optional keyboard tray P/N 28L4707. This keyboard cannot share a keyboard tray with a flat panel display.
8. Advanced TrackPoint IV features are not available on IBM Netfinity systems.
9. Planned replacement for Netfinity 5500 Tower-to-Rack Kit (P/N 01K8020).

Netfinity 5500 M10 Tape Options

Part Number	Description	Bays Supported	SCSI Interface (bit)	Form Factor	Termination Included	68/50- pin Converter Incl.	Ext. Tape Encl.[1]
01K1282	12/24 GB DDS/3 4-mm Internal Tape Drive	A, B	8	89 mm (3.5") HH or 133 mm (5.25") HH	Y[2]	Y	3510020
00N7991	20/40 GB DDS/4 4-mm Internal Tape Drive	A, B	16 Ultra2 LVD	89 mm (3.5") HH or 133 mm (5.25") HH	Y[2]	N	3510020 3551001
01K1325	20/40 GB 8-mm Internal SCSI Tape Drive	A, B	16	133 mm (5.25") HH	N[3]	N	3510020[4] 3551001
01K1320	20/40 GB DLT Internal SCSI Tape Drive	A/B[5]	8	133 mm (5.25") FH	Y[6]	Y	3503B0X, 3551001
04K0149	35/70 GB DLT Internal SCSI Tape Drive	A/B[5]	16	133 mm (5.25") FH	N[3]	N	3503B0X[4], 3551001
00N7990	40/80 GB DLT Internal SCSI Tape Drive	A/B[5]	16 Ultra2 LVD	133 mm (5.25") FH	N[3]	N	3503B0X[4], 3551001
	Associated Options						
32G3918	SCSI-2 16-bit Active Terminator	-	16	External	Y	N	3510020, 3503B0X
	External Tape Enclosures						
3510020	External Half High SCSI Storage Enclosure[7]	-	8/16	Desktop	N	N	-
3551001	NetMEDIA Storage Expansion Unit EL[8]	-	16	Rack	Y	N	-
10L7113	NetMEDIA Systems Management Adapter[9]	-	16 LVD	-	N	N	3551001
3503B0X	DLT External SCSI Enclosure[10]	-	16	Desktop	N	N	-
	External Tape Libraries[11]						
3502108	DLT Tape Autoloader	-	16	Desktop	Y	-	-
3502x14	DLT Tape Library	-	16	Desktop or Rack	Y	-	-
3570xxx	Magstar MP 3570 Tape Subsystem (models B2x and C2x)	-	Diff.	Rack	Y	-	-

1. To determine cable requirements, note the tape drive's SCSI interface, the appropriate SCSI controller from the system configurator section, and the desired enclosure and then refer to Appendix D: Cables - Storage Units - Controllers.
2. Tape drive is capable of self termination.
3. Termination is provided by the system unit's standard SCSI cabling.
4. Requires SCSI-2 16-bit Active Terminator (P/N 32G3918).
5. Two Half-High (HH) bays can be combined to support a single Full-High (FH) device.
6. A 16-bit terminator is included for attachment to an internal cable.
7. Provides a black desktop 5.25" half-high (HH) tape enclosure. Connector is configurable as 50-pin Centronix or 68-pin high density. Requires either tape drive self termination or SCSI-2 16-bit Active Terminator (P/N 32G3918).
8. Provides a black 3U, 19" rack or NetBAY3 mountable tape enclosure. Provides two full high (FH) or four half high (HH) extended length 5.25" bays. External connector is 0.8-mm VHDCI. Includes two power supplies and two power cords.
9. Installs in a 3551001. Provides repeater function and LVDS interface allowing longer cable lengths and auto-termination when the 3551001 is powered off.
10. Provides a black desktop DLT tape enclosure with a 68-pin high density external connector. Requires termination by the tape drive or by the tape drive or by installation of a SCSI-2 16-bit Active Terminator (P/N 32G3918).
11. Tape library attributes and prerequisites are located in Appendix B: Tape Library Attributes.

NOTE: SCSI support for tape drives is provided by system unit onboard (standard) controller (no-RAID function) or PCI Fast Wide Ultra SCSI Adapter P/N 02K3454. Additional tape attributes can be found in Appendix A: Tape Drive Attributes.

Sample Configurations

Note: The following sample configurations are for illustration only and may not be suitable for any specific customer installation. Contact your IBM Business Partner or IBM Marketing Representative for assistance with your specific configuration requirements.

High Availability

Part Number	Description	Quantity	Usage
8661-51Y	Netfinity 5500 M10 (Pentium III Xeon 550/256 MB/0 GB, Tower & NetBAY3)	1	-
01K8053	Netfinity 9.1 GB Wide Ultra SCSI SCA-2 SL HDD	6	NOS-mirrored, Data-RAID 5
01K1320	20/40 GB DLT Internal SCSI Tape Drive	1	-
7852400	External V.34 Data/Fax Modem	1	Remote Management
01K7951	Netfinity 400W Hot-Swap Redundant Power Supply II	1	-
10L6912	Netfinity NetBAY3	1	Enclosure for second UPS
94G6674	APC Smart-UPS 1400 RMB[1]	2	Redundant UPS
65464AN	G54 Color Monitor 15" (348 mm, 13.7" Viewable Image Size), stealth black	1	-

1. Even though a second UPS provides a redundant power source, systems management software does not currently take advantage of its power outage alerts.

This tower server is configured to act as the foundation for business critical applications, applications your business cannot afford to be without. Configured with enough disk drives to mirror the operating system and provide a standard RAID 5 environment for data, optional hot-swap redundant power and redundant UPSs for power even during a blackout or in the event of a UPS or power cord failure, this server represents the leading edge in high availability. An internal tape drive is included to back up that all important asset..... data, and a modem is included to allow out-of-band (non-LAN) system management utilizing the Netfinity Advanced System Management Processor.

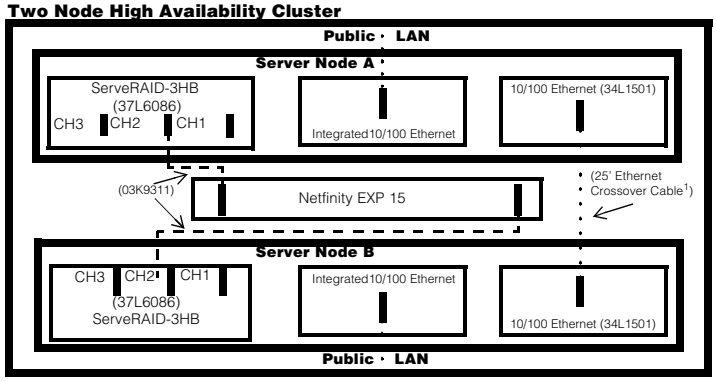
Web Server

Part Number	Description	Quantity	Usage
8661-51Y	Netfinity 5500 M10 (Pentium III 550/256 MB/0 GB, Tower & NetBAY3)	1	-
01K7262	Netfinity 128 MB SDRAM ECC RDIMM	1	
01K8043	Netfinity 256 MB SDRAM ECC RDIMM	1	Total Memory: 640 MB
36L9806	Netfinity 9.1 GB 10K-3 Wide Ultra SCSI Hot-Swap SL HDD	6	RAID 5 Data Storage
footnote 1	High Speed ISDN Connection[1]	1	Connection to Web
01K1320	20/40 GB DLT Internal SCSI Tape Drive	1	-
02K3454	PCI Fast/Wide Ultra SCSI Adapter	1	Tape Controller
03K9313	Netfinity SCSI Controller Cable	1	Provides external RAID
10L6912	Netfinity NetBAY3	1	Enclosure for EXP15
35202RU	Netfinity EXP15	1	Provides additional 10 Bays
36L9809	Netfinity EXP 9.1 GB 10K-3 Wide Ultra SCSI Hot-Swap HDD	5	RAID 5 Data Storage
03K9310	Netfinity 2 M Ultra2 SCSI Cable	1	Attaches EXP15 to 03K9313
01K7951	Netfintiy 400W Hot-Swap Redundant Power Supply II	1	-
94G6676	APC Smart-UPS 3000 RMB[2]	2	Redundant UPSs
65464AN	G54 Color Monitor 15” (348 mm, 13.7” Viewable Image Size), stealth black	1	-

1. Select from ServerProven options found on the Web at URL www.ibm.com/pc/us/compat. Warranty and service for third party ServerProven products is provided for by the manufacturer, not IBM.
2. Even though a second UPS provides a redundant power source, systems management software does not currently take advantage of its power outage alerts.

This tower model is configured as the perfect Web presence for a company ready for eBusiness. With enough disk storage to host a large sales catalog, an optional hot-swap power supply and UPS so that your server is ready when your customers are ready to order, and an ISDN adapter to allow for a speedy connection into the Web infrastructure, on top of all the integrated high-availability features make this the ideal server for electronic commerce.

Two Node High Availability Cluster



1.Customer supplied Ethernet Crossover Cable may vary in length up to a maximum of 25' (7.6 m).

Two Node High Availability Cluster

Part Number	Description	Quantity	Usage
	Server Nodes A & B		
8661-5RY	Netfinity 5500 M10 (Pentium III Xeon 550/256MB Rack) (8U)	2	-
33L5107	Netfinity 550 MHz/512 KB Upgrade with Pentium III Xeon Processor	2	Dual SMP Processing
01K8053	Netfinity 9.1 GB Wide Ultra SCSI SCA-2 SL HDD	4	NOS on mirrored HDDs
37L6086	Netfinity ServeRAID-3HB Ultra2 SCSI Adapter[2]	2	Three channels for EXP15s
34L1501	Netfinity 10/100 Ethernet PCI Adapter 2[1]	2	Private Interconnect
00N7990	40/80 GB DLT Internal SCSI Tape Drive	1	
02K3454	PCI Fast/Wide Ultra SCSI Adapter	1	Tape Drive Controller
7852400	External V.34 Data/Fax Modem	2	Remote Management
01K7951	Netfinity 400 W Hot-Swap Redundant Power Supply II	2	-
94G6676	APC Smart-UPS 3000RMB (3U)	2	-
	Storage Expansion Unit		
35202RU	Netfinity EXP15[2] (3U)	1	-
01K7959	Netfinity EXP10 9.1 GB Wide Ultra SCSI SCA-2 HDD[2]	5	RAID 5 Shared Storage
03K9311	Netfinity 4.2 M Ultra2 SCSI Cable[2]	2	Attach EXP15 to Servers
	Shared (or single occurrence) Resources		
9513AG1	T55A Flat Panel Color Monitor (381 mm, 15.0" Viewable Image Size), stealth black	1	Mounts in keyboard tray
28L3644	Space Saver II Keyboard	1	-
	Industry Standard 19" Rack, EIA-310D, Min. depth of 28"		
9306900	9306-900 Netfinity Rack	1	-
28L4707	Netfinity Rack Keyboard Tray	1	-
37L6857	Netfinity Flat Panel Monitor Rack-Mount Kit (3U)	1	Mounts in keyboard tray
28L0542	Netfinity Console Server Selector Switch (4-port)	1	-
94G6667	Power Cable-Type A14[3]	3	-
94G7447	12ft. Console Cable Set	2	-
94G6669	Side Panel Kit	1	-
94G6670	Blank Filler Kit	2	-

1. Requires customer supplied Ethernet Crossover Cable which may vary in length up to a maximum of 25' (7.6 m).
2. By replicating these items, up to a total quantity of four ServeRAID-3HB Adapters (plus options) and eleven EXP15s can provide over 2 Terabytes of storage. Additional power and rack space will be required.
3. Cable length requirements are dependant on component placement within the rack suite. To determine specific configuration requirements use the Netfinity Rack Configurator which is downloadable from the Web site www.ibm.com/pc/us/netfinity/tech_library.html "Configuration Tools".

Clustering is a group of interconnected computers used as a single, unified computing resource. Clustering Netfinity servers, like the IBM Netfinity 5500 M10, provides high availability solution to keep you in touch with the key applications you need to run your business.

This sample configuration consists of paired IBM Netfinity 5500 M10 cluster nodes equipped with two-way SMP capability and redundant power supplies. Microsoft Cluster Service (MSCS) has been validated on IBM Netfinity 5500 M10 servers, using the Netfinity ServeRAID-3HB Storage Expansion Unit. MSCS allows two configured servers, referred to as nodes, to be connected together to form a cluster. Providing system redundancy means that a complete server can fail and client access to server resources is largely unaffected. MSCS extends this theme by also allowing for software failures at an application level as well as an operating system level. If the operating system fails, all applications and services can be restarted on another server, and if just one application fails, it can be managed by MSCS individually. An additional independent network connection is used to perform monitoring within the cluster. One or more disk subsystems are attached to both nodes. In the above example, a Netfinity EXP15 was selected and the Netfinity ServeRAID-3HB Ultra2 SCSI Adapters provide the I/O control. Netfinity ServeRAID-3HB handles the "SCSI heartbeat" connection without the need for a dedicated SCSI connection and logically attaches to the quorum disk, which allows arbitration when a failure occurs. Additional information on IBM Netfinity and IBM PC Server Clustering Solutions may be found on the World Wide Web by accessing URL www.ibm.com/pc/us/netfinity/clustering.html.

IBM Netfinity 5500 M20 Configurator

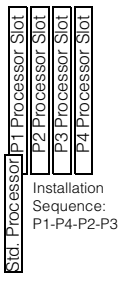
Part Number	Withdrawal Date (mmddyy)[6]	Processor Speed (MHz)[2]	Number of Processors (Std/Max)	L2 ECC Cache (KB)	Memory (Std/Max) (R=RDIMM)	Form Factor	Power Supply Quantity (Std/Max)	Hot-Swap (Power, Slots, HDD, Fans)	Redundancy (Optional, Standard)	Adv. System Management Processor[7]	Onboard Ethernet (Mbps)	SCSI Controller (Dual, Ultra, RAID)	Removable Media Bays (Total/Avail)	Internal Hard Disk Drive (Std/Max)	CD-ROM (IDE)	Bays: (Total/Avail)	Slots: (Total/Avail)
8662-31Y	042800	500	1/4	512	256 MB(R) /4 GB	Tower[3]	1/2	P, S, H, F	S-Fans, O-Power	Y	10/100	D, R	4/2	0/109 GB[4]	32X-14X[5]	10/ 8	6/6
8662-3RY[1]	042800	500	1/4	512	256 MB(R)/4 GB	Rack (8U)	1/2	P, S, H, F	S-Fans, O-Power	Y	10/100	D, R	4/2	0/109 GB	32X-14X[5]	10/ 8	6/6
8662-41Y	042800	500	1/4	1024	256 MB(R)/4 GB	Tower[3]	1/2	P, S, H, F	S-Fans, O-Power	Y	10/100	D, R	4/2	0/109 GB[4]	32X-14X[5]	10/ 8	6/6
8662-4RY[1]	042800	500	1/4	1024	256 MB(R)/4 GB	Rack (8U)	1/2	P, S, H, F	S-Fans, O-Power	Y	10/100	D, R	4/2	0/109 GB	32X-14X[5]	10/ 8	6/6
8662-51Y	-	550	1/4	512	256 MB(R)/4 GB	Tower[3]	1/2	P, S, H, F	S-Fans, O-Power	Y	10/100	D, R	4/2	0/109 GB[4]	40X-17X[5]	10/ 8	6/6
8662-5RY[1]	-	550	1/4	512	256 MB(R)/4 GB	Rack (8U)	1/2	P, S, H, F	S-Fans, O-Power	Y	10/100	D, R	4/2	0/109 GB	40X-17X[5]	10/ 8	6/6
8662-61Y	-	550	1/4	1024	256 MB(R)/4 GB	Tower[3]	1/2	P, S, H, F	S-Fans, O-Power	Y	10/100	D, R	4/2	0/109 GB[4]	40X-17X[5]	10/ 8	6/6
8662-6RY[1]	-	550	1/4	1024	256 MB(R)/4 GB	Rack (8U)	1/2	P, S, H, F	S-Fans, O-Power	Y	10/100	D, R	4/2	0/109 GB	40X-17X[5]	10/ 8	6/6

1. Housed in a 19" Rack mountable drawer and ships standard without a keyboard or mouse. See "Rack and NetBAY" under "Netfinity 5500 M20 Power, Monitor & Accessories" for supported IBM racks.
2. Intel Pentium III Xeon processor.
3. Tower models come equipped with a single NetBAY3 (3U) stackable enclosure. Up to a maximum of three are supported.
4. With a single Netfinity EXP15 installed in the standard NetBAY3 the maximum internal storage increases by 364 GB.
5. Variable read rate. Actual playback speed will vary and is often less than the maximum possible.
6. Not available from IBM after this date. Business Partner inventory may be available.
7. System Management firmware update diskette version 2.11 or later should be downloaded from www.pc.ibm.com/qtechinfo/SCOD-464NG3.html.

Netfinity 5500 M20 Processor Upgrades

Part Number	Processor Upgrades with 512 KB or 1 MB Cache	SMP Support[1]	Processor Speed/Cache Upgrade[2]
10L5901	Netfinity 5500 450 MHz/512 KB Upgrade with Pentium II Xeon Processor[3]	-	Footnote 3
10L5902	Netfinity 5500 450 MHz/1 MB Upgrade with Pentium II Xeon Processor[3]	-	Footnote 3
33L5053	Netfinity 500 MHz/512 KB Upgrade with Pentium III Xeon Processor	All 3xY	-
33L5054	Netfinity 500 MHz/1 MB Upgrade with Pentium III Xeon Processor	All 4xY	All 3xY
33L5107	Netfinity 550 MHz/512 KB Upgrade with Pentium III Xeon Processor	All 5xY	All 3...4xY
33L5108	Netfinity 550 MHz/1 MB Upgrade with Pentium III Xeon Processor	All 6xY	All 3...5xY

1. Up to three additional processors may be installed, providing a maximum of four. All processors must be identical in type, speed and cache size.
2. Requires removal of the standard processor. A maximum of four processors may be installed. All processors must be identical in type, speed and cache size. Upgrades may require a BIOS update. To obtain the latest Flash BIOS, access www.ibm.com/pc/support and enter machine "Type-Model" in Quick Path. Select "Downloadable files" and then "BIOS".
3. Although supported by all Netfinity 5500 M20 models, these processors are intended for use with Netfinity Four-Way Processor Ugrade Kit (P/N 28L1014) to provide investment protection when upgrading 5500 M10 models already containing one or more of these processors.



Netfinity 5500 M20 Memory

RDIMM Slot 1	Std. RDIMM
RDIMM Slot 2	
RDIMM Slot 3	
RDIMM Slot 4	
RDIMM Slot 5	
RDIMM Slot 6	
RDIMM Slot 7	
RDIMM Slot 8	

Part Number	Memory Description
01K7262	Netfinity 128 MB SDRAM ECC RDIMM[1]
01K8043	Netfinity 256 MB SDRAM ECC RDIMM[1]
01K7263	Netfinity 512 MB SDRAM ECC RDIMM[1]

1. DIMMs should be installed in the following sequence beginning with Slot 1 and ordered from largest to smallest: 1-5-2-6-3-7-4-8.

Total Memory[1]	All Models
256 MB	256 MB RDIMM Standard
384 MB	1 x 01K7262
512 MB	1 x 01K8043
768 MB	1 x 01K7263 or 2 x 01K8043[3]
1280 MB	2 x 01K7263 or 4 x 01K8043[3]
1792 MB	3 x 01K7263 or 6 x 01K8043[3]
2048 MB	(3 x 01K7263, 1 x 01K8043) or 7 x 01K8043[3]
3072 MB	5 x 01K7263, 1 x 01K8043
4096 MB	8 x 01K7263[2]

This table does not represent all possible memory configurations.
1. Network Operating Systems may limit the maximum amount of addressable memory. See operating system specifications for further information.
2. Replace standard DIMM.
3. Memory modules may vary in price per MB. Selection of smaller RDIMMs may provide a more cost-effective alternative to using the largest RDIMMs and should be considered when anticipated future memory is 2 GB or less.

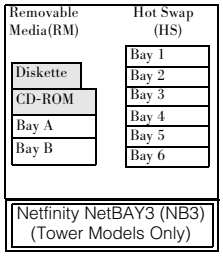
Netfinity 5500 M20 Hard Disk Drive (HDD) Storage

Total Internal Storage[1]	7200 RPM Hard Disk Drives (HDDs)			10,000 RPM Hard Disk Drives (HDDs)		
	9.1 GB	18.2 GB	36.4 GB	9.1 GB	18.2 GB	36.4 GB
0 GB	Standard on Base Models			Standard on Base Models		
9.1 GB	1 x 01K8053	-	-	1 x 36L9806	-	-
18.2 GB	2 x 01K8053 or	1 x 02K0440		2 x 36L9806 or	1 x 36L9807	-
27.2 GB	3 x 01K8053	-	-	3 x 36L9806	-	-
36.4 GB	4 x 01K8053 or	2 x 02K0440 or	1 X 02K0441	4 x 36L9806 or	2 x 36L9807 or	1 x 36L9808
45.5 GB	5 x 01K8053	-	-	5 x 36L9806	-	-
54.6 GB	6 x 01K8053 or	3 x 02K0440	-	6 x 36L9806 or	3 x 36L9807	-
72.8 GB	-	4 x 02K0440 or	2 X 02K0441	-	4 x 36L9807 or	2 x 36L9808
91 GB	-	5 x 02K0440	-	-	5 x 36L9807	-
109 GB(max)	-	6 x 02K0440 or	3 X 02K0441	-	6 x 36L9807 or	3 x 36L9808

This table does not represent all possible hard drive configurations.
1. Total Internal Storage listed is within ± 0.2 GB unless otherwise noted.

Bay	Form Factor	Height	Front Access	Usage
-	89 mm (3.5")	SL	Yes	Diskette
-	133 mm (5.25")	HH	Yes	IDE CD-ROM
A	133 mm (5.25"	HH[1]	Yes	Open
B	133 mm (5.25"	HH[1]	Yes	Open
1...6	HS	SL[2]	Yes	Open
NB3[3]	19" Rack	3U	Yes	Open

1. Two half-high (HH) bays can be combined to support a single full-high (FH) device.
2. Two slim-line (SL) bays can be combined to support a single half-high (HH) device.
3. One NetBAY3 is included with tower models and a total of three are supported. See IBM Netfinity NetBAY3 Stackable Enclosure section for supported devices.



Part Number	Description	RPM	Height	Bays Supported	Max. Qty.
	Internal Hard Disk Drives (HDD)				
01K8053	Netfinity 9.1 GB Wide Ultra SCSI SCA-2 SL HDD	7200	SL	1...6	6
02K0440	Netfinity 18.2 GB Wide Ultra SCSI Hot-Swap SL HDD	7200	SL	1...6	6
02K0441	Netfinity 36.4 GB Wide Ultra SCSI Hot-Swap HDD	7200	HH[1]	1/2, 3/4, 5/6	3
36L9806	Netfinity 9.1 GB 10K-3 Wide Ultra SCSI Hot-Swap SL HDD	10,000	SL	1...6	6
36L9807	Netfinity 18.2 GB 10K-3 Wide Ultra SCSI Hot-Swap SL HDD	10,000	SL	1...6	6
36L9808	Netfinity 36.4 GB 10K-3 Wide Ultra SCSI Hot-Swap HDD	10,000	HH[1]	1/2, 3/4, 5/6	3

	External Storage Expansion Units[2]	Form Factor
35202RU	Netfinity EXP15 Storage Expansion Unit	Rack (3U)
35301RU	Netfinity EXP200 Storage Expansion Unit[3]	Rack (3U)
37L5857	Netfinity EXP200 Rack-to-Tower Conversion Kit	Tower
37L0075	Netfinity EXP200 350 W Redundant Power Supply	-
35311RU	Netfinity EXP300 Storage Expansion Unit[4, 6]	Rack (3U)
09N7296	Netfinity EXP300 Rack-to-Tower Conversion Kit[6]	-
35601RU	Netfinity FAStT EXP500 Storage Expansion Unit[5]	Rack (3U)

1. Two slim-line (SL) bays can be combined to support a single half-high (HH) device.
2. Supported by the onboard external SCSI port. Select the onboard or optional SCSI controller then refer to Appendix D: Cables-Storage Units-Controllers to confirm the controller supports the desired External Storage Expansion Unit and to select a supported cable. For HDD or other expansion unit options, see the specific expansion unit section.
3. Netfinity EXP200 includes a single 2 M Ultra2 SCSI cable and a single hot-swap 350 W power supply and power cord. Optional hot-swap Netfinity EXP200 350 W Redundant Power Supply (P/N 37L0075) includes an additional power cord. To convert an EXP200 to a tower form factor, Netfinity EXP200 Rack-to-Tower Conversion Kit (P/N 37L5857) is required.
4. Netfinity EXP300 includes a single 2 M Ultra2 SCSI cable and dual hot-swap 500 W power supplies, each with its own power cord. To convert an EXP300 to a tower form factor, Netfinity EXP300 Rack-to-Tower Conversion Kit (P/N 09N7296) is required.
5. Netfinity FAStT EXP500 Storage Expansion Unit (P/N 35601RU) includes dual hot-swap 350 W power supplies, each with its own power cord.
6. Planned availabilty of June 30, 2000.

Internal SCSI Cabling

Netfinity 5500 M20 systems contain a backplane supporting six hot-swap drive bays. The backplane is connected to one of the two connectors of the integrated dual-channel ServeRAID controller through a 16-bit SCSI cable. A two-drop 16-bit SCSI cable, with an integrated terminator, is included with the server to support up to two internal removable media devices connected to the second RAID connector or a supported SCSI adapter. The standard cabling routes the second RAID connector to the rear panel cutout providing an external 16-bit VHDCI 0.8 mm connector. If internal removable media devices are required, in addition to external RAID device attachment, a supported SCSI adapter must be installed using the standard two-drop SCSI cable for device/adapter connection. If connecting narrow devices to this cable, additional 68-pin to 50-pin converters (P/N 32G3925) must be ordered. Some narrow devices include a converter in their ship group.

Netfinity 5500 M20 I/O Options

Part Number	Description	Adapter Length	PCI Support	Slots Supported[1]	Hot-Plug[2]
	Storage Controllers[3]				
01K7364	Netfinity ServeRAID-3L Ultra2 SCSI Adapter[4]	Full	32-bit	1...4	X
37L6086	Netfinity ServeRAID-3HB Ultra2 SCSI Adapter[5]	Full	32/64-bit	1...4	X
37L6889	Netfinity ServeRAID-4H Ultra160 SCSI Controller[6]	Full	32/64-bit	1...4	X
02K3454	PCI Fast/Wide Ultra SCSI Adapter	Half	32-bit	1...5	-
09L2123	Advanced SerialRAID/X Adapter	Full	32-bit	1...4	
	Fibre Storage Controllers and Options[7]				
01K7297	Netfinity Fibre Channel PCI Adapter	Half	32/64-bit	1...5	-
35261RU	Netfinity Fibre Channel RAID Controller Unit	-	-	-	-
01K7296	Netfinity Fibre Channel Failsafe RAID Controller	-	-	-	-
35231RU	Netfinity Fibre Channel Hub	-	-	-	-
00N6881	Netfinity FAStT Host Adapter	Half	32/64-bit	1...5	X
35521RU	Netfinity FAStT500 RAID Controller	-	-	-	-
2109S08	SAN Fibre Channel Switch, 8-Port	-	-	-	-
2109S16	SAN Fibre Channel Switch, 16-Port	-	-	-	-
	Networking[8]				
	Ethernet				
34L1501	Netfinity 10/100 Ethernet PCI Adapter 2	Half	32-bit	1...5	X
08L3341	Netfinity 10/100 Fault Tolerant Adapter	Half	32-bit	1...5	X
34L0301	Netfinity Gigabit Ethernet SX Adapter	Half	32/64-bit	1...5	X
	Token Ring				
34L0501	Token-Ring 100/16/4 High-Speed PCI Adapter	Half	32-bit	1...5	-
34L0601	Token-Ring 16/4 PCI Adapter 2	Half	32-bit	1...5	-
	Communications				
33L4618	PCI V.90 56 Data/Fax Modem[9]	Half	32-bit	1...5	-
37L14xx	Serial I/O SST 8, 16 and 128 Port Adapters[10]	Half	32-bit	1...5[10]	-
	Systems Management[11]				
01K7209	Netfinity Advanced System Management PCI Adapter[12]	Full	32-bit	1...4[13]	
03K9309	Netfinity A4vanced System Management Interconnect Cable Kit[14]	-	-	-	-
36L9654	Netfinity Advanced System Management Token-RIng Connection[15]	-	-	-	-
	Host Attach				
9086001	Netfinity ESCON Adapter[16]	Full	32-bit	1...4[17]	-

ISA - Full Length
Slot 1- PCI, Hot- Plug, 32-bit, Full Length
Slot 2 - PCI, Hot- Plug, 32-bit, Full Length
Slot 3 - PCI, Hot- Plug, 32-bit, Full Length
Slot 4 - PCI, Hot- Plug, 32-bit, Full Length
Slot 5- PCI, Primary Bus, Half Length

1. PCI Slots 1, 2, 3 and 4 support Hot Plug devices.
2. Hot Plug capable using IBM's Active PCI technology. For Network Operating System support access URL www.ibm.com/pc/us/compat.
3. Netfinity 5500 and 5500 Mxx have a dual channel ServeRAID II Wide Ultra SCSI controller.
4. Netfinity ServeRAID-3L Ultra2 SCSI Adapter (P/N 01K7364) provides either one internal or one external (0.8 mm VHDCI) LVDS SCSI channel.
5. Netfinity ServeRAID-3HB Ultra2 SCSI Adapter (P/N 37L6086) provides one internal and two external (0.8 mm VHDCI) LVDS SCSI channels.
The internal channel can be configured for external usage (0.8mm VHDCI connector) providing a total of three external LVDS SCSI channels. Includes 32MB of mirrored battery-backup cache, which helps protect against data loss in write-back cache mode in the event of a power outage or adapter maintanance.
6. Netfinity ServeRAID-4H Ultra160 SCSI Controller is powered by a 266 MHz PowerPC 750 processor and provides 128 MB of battery-backed ECC cache with two internal and up to four external Ultra160 connectors (only four connectors may be utilized). External connectors are 0.8-mm VHDCI.
7. See Netfinity Fibre Array Solutions section for additional configuration information.
8. Netfinity 5500 and 5500 Mxx have an integrated 10/100 PCI Ethernet Controller.
9. Due to homologation variances, modem availability may differ by country.
10. See Appendix E for details on Serial I/O options and configuration limitations. A maximum of four Serial I/O adapters (any combination of P/N 37L1414, 37L1415, 37L1416, 37L1423) may be installed.
11. System Management firmware update diskette version 2.11 or later should be downloaded from www.pc.ibm.com/qtechinfo/SCOD-464NG3.html. The Netfinity Advanced System Management Processor and Interconnect Bus integrated into Netfinity 5500 (8660-5...6xU) and 5500 Mxx works with Netfinity Manager to provide significant system management function. When used with optional Netfinity Advanced System Management PCI Adapter (P/N 01K7209) and Netfinity Advanced System Management Interconnect Cable Kit (P/N 03K9309) additional management and control of up to 12 service processors from a remote console through a single modem or LAN connection is possible. Systems management options P/N 01K7209, 03K9309 and 36L9654 are NOT supported by Netfinity 5500 models 8660-1...4xU.
12. Includes PCI adapter, Netfinity Advanced System Management Interconnect Cable Kit components and 56-watt AC adapter, which requires a separate power source. Provides an integrated 10/100 Ethernet port and a PCMCIA slot to support optional Netfinity Advanced System Management Token-Ring Connection (P/N 36L9654). NOT supported by Netfinity models 8660-1...4xU.
13. A maximum quantity of one is supported.
14. Required for all Netfinity servers containing a standard Advanced System Management Processor that are to be interconnected for system management support through a LAN or modem connection (Netfinity 5500 models 8660- 1...4xU are not supported). Optional Netfinity Advanced System Management PCI Adapter (P/N 01K7209) includes the content of this option. Up to 12 service processors may be interconnected (including standard and optional processors) with an aggregate connection length of no more than 91.4 meters (300 ft.). A customer-supplied Ethernet cable is required for each interconnection.
15. Contains an IBM Turbo 16/4 Token-Ring PCI Card, which installs in the PCMCIA card slot of Netfinity Advanced System Management PCI Adapter (P/N 01K7209), and a PC Card to 9-pin D-Shell cable which is routed to a rear chassis cut-out. The Netfinity Advanced System Management PCI Adapter's integrated Ethernet port and Netfinity Advanced System Management Token-Ring Connection cannot be connected or used together.
16. Provides an ESCON MIC and a DB9 Serial Port. Cables are not included but are available through S390 channels. Contact your IBM representative for additional information.
17. A maximum of two 9086001 adapters (installed in non-adjacent slots) are supported in a single Netfinity server.

Netfinity 5500 M20 Power, Monitor & Accessories

Part Number	Description
	Power[1]
01K7963	Netfinity 500 W Hot-Swap Redundant Power Supply II[2]
	Uninterruptible Power Supply (UPS)[3]
94G3136	APC Smart-UPS 1400
94G6674	APC Smart-UPS 1400 RMB[4]
94G6676	APC Smart-UPS 3000 RMB[4]
37L6861	APC Smart-UPS 5000 RMB[5]
	Monitors
65464AN	G54 Color Monitor 15" (348-mm, 13.7" Viewable Image Size), stealth black[6]
65474AN	G74 Color Monitor 17" (403-mm, 15.9" Viewable Image Size), stealth black[6]
6331B2N	E54 Color Monitor 15" (350-mm, 13.8" Viewable Image Size), stealth black[6]
6332J1N	E74 Color Monitor 17" (403-mm, 15.9" Viewable Image Size), stealth black[6]
654841N	G76 Color Monitor 17" (406-mm, 16" Viewable Image Size), stealth black[6]
65494AN	G96 Color Monitor 19" (454-mm, 17.9" Viewable Image Size), stealth black[7]
9513AG1	T55A Flat Panel Color Monitor (381-mm, 15.0" Viewable Image Size), stealth black[8]
9519AG1	T85A Flat Panel Color Monitor (459-mm, 18.1" Viewable Image Size), stealth black[7]
	Cables
32G3925	SCSI 68-pin to 50-pin Converter

1. Netfinity 5500 M20 includes a single 500 W power supply which is sufficient to operate fully configured systems. If power supply redundancy is desired, optional power supply P/N 01K7953 is required.
2. Includes a power cord which requires an additional power source. Even though a second UPS provides a redundant power source, systems management software does not currently take advantage of its power outage alerts.
3. For runtimes and UPS attributes see Appendix C: UPS Runtime Estimate.
4. Height is 3U. See "Rack and NetBAY" for supported IBM racks.
5. Height is 5U. See "Rack and NetBAY" for supported IBM racks.
6. Installation within a rack requires optional Monitor Compartment (P/N 94G7444).
7. Not supported for installation in a 19" rack.
8. Installation within a rack requires optional Netfinity Flat Panel Monitor Rack Mount Kit (P/N 37L6857) and Netfinity Rack Keyboard Tray (P/N 28L4707). A space saver keyboard may coexist within the same 28L4707 keyboard tray.
9. Netfinity 5500 M20 comes with an external 0.8 mm VHDCI port cabled to the second onboard RAID SCSI port.

Part Number	Description
	Conversion Kits
37L6860	Netfinity 8Ux24D Rack-to-Tower Kit[1]
01K8021	Netfinity 5500 Rack-to-Tower Kit[2]
37L6859	Netfinity 8Ux24D Tower-to-Rack Kit[9]
01K8020	Netfinity 5500 Tower-to-Rack Kit
	Rack and NetBAY[3]
930842P	Netfinity Enterprise Rack
930842X	Netfinity Enterprise Expansion Cabinet
9306900	Netfinity Rack
9306200	Netfinity NetBAY22
10L6912	Netfinity NetBAY3[4]
10L6913	Netfinity Caster Set
	Keyboard and Mouse[5]
28L3644	Space Saver II Keyboard[6,8]
01K1260	TrackPoint IV 104-Key Black Keyboard[7,8]
28L3621	Preferred Keyboard (stealth black)7[6]
28L3673	Sleek 2-Button Stealth Black Mouse

1. Includes one Netfinity NetBAY3 with casters. Planned replacement for Netfinity 5500 Rack-to-Tower Kit (P/N 01K8021).
2. Includes one Netfinity NetBAY3 with skid pads. Optional casters (P/N 10L6913) are available.
3. Netfinity 5500 and 5500 Mxx rack models are housed in a 19" rack mountable drawer and require one of the racks listed here.Tower models include a single NetBAY3 with skid pads. Optional casters (P/N 10L6913) are available. See IBM Netfinity Rack Cabinet and Options section for IBM rack NetBAY3 with skid pads.Optional casters (P/N 10L6913) are available. See IBM Netfinity Rack supported devices.
4. A maximum of three NetBAY3 enclosures (including the standard one) may be stacked beneath a supported Netfinity tower server. Casters are not included. See IBM Netfinity NetBAY3 Stackable Enclosure section for supported devices.
5. Tower models include both a mouse and keyboard. Rack models include neither.
6. Installation within a rack requires optional keyboard tray P/N28L4707 (stows in "ready-to-use" position).
7. Installation within a rack requires optional keyboard tray P/N 28L4707. This keyboard cannot share a keyboard tray with a flat panel display.
8. Advanced TrackPoint IV features are not available on IBM Netfinity systems.
9. Planned replacement for Netfinity 5500 Tower-to-Rack Kit (P/N 01K8020).

Netfinity 5500 M20 Tape Options

Part Number	Description	Bays Supported	SCSI Interface (bit)	Form Factor	Termination Included	68/50- pin Converter Incl.	Ext. Tape Encl.[1]
01K1282	12/24 GB DDS/3 4-mm Internal Tape Drive	A, B	8	89 mm (3.5") HH or 133 mm (5.25") HH	Y[2]	Y	3510020
01K1319	10/20 GB NS Internal SCSI Tape Drive	A, B	8	89 mm (3.5") SL or 133 mm (5.25") HH	Y[2]	Y	3510020[4], 3551001
01K1325	20/40 GB 8-mm Internal SCSI Tape Drive	A, B	16	133-mm (5.25") HH	N[3]	N	3510020[4], 3551001
01K1320	20/40 GB DLT Internal SCSI Tape Drive	A/B[5]	8	133-mm (5.25") FH	Y[6]	Y	3503B0X, 3551001
04K0149	35/70 GB DLT Internal SCSI Tape Drive	A/B[5]	16	133-mm (5.25") FH	N[3]	N	3503B0X[4], 3551001
00N7990	40/80 GB DLT Internal SCSI Tape Drive	A/B[5]	16 Ultra2 LVD	133-mm (5.25") FH	N[3]	N	3503B0X[4], 3551001
	Associated Options						
32G3918	SCSI-2 16-bit Active Terminator	-	16	External	Y	N	3510020, 3503B0X
	External Tape Enclosures						
3510020	External Half High SCSI Storage Enclosure[7]	-	8/16	Desktop	N	N	-
3551001	NetMEDIA Storage Expansion Unit EL[8]	-	16	Rack	Y	N	-
10L7113	NetMEDIA Systems Management Adapter[9]	-	16 LVD	-	N	N	3551001
3503B0X	DLT External SCSI Enclosure[10]	-	16	Desktop	N	N	-
	External Tape Libraries[11]						
3502108	DLT Tape Autoloader	-	16	Desktop	Y	-	-
3502x14	DLT Tape Library	-	16	Desktop or Rack	Y	-	-
3503108	DLT8000 Tape Autoloader	-	16 LVD	Desktop	Y	-	-
3503x14	DLT8000 Tape Library	-	16 LVD	Desktop or Rack	Y	-	-
3570xxx	Magstar MP 3570 Tape Subsystem (models B2x and C2x)	-	Diff.	Rack	Y	-	-

1. To determine cable requirements, note the tape drive's SCSI interface, the appropriate SCSI controller from the system configurator section, and the desired enclosure and then refer to Appendix D: Cables - Storage Units - Controllers.
2. Tape drive is capable of self termination.
3. Termination is provided by the system unit's standard SCSI cabling.
4. Requires SCSI-2 16-bit Active Terminator (P/N 32G3918).
5. Two Half-High (HH) bays can be combined to support a single Full-High (FH) device.
6. A 16-bit terminator is included for attachment to an internal cable.
7. Provides a black desktop 5.25" half-high (HH) tape enclosure. Connector is configurable as 50-pin Centronix or 68-pin high density. Requires either tape drive self termination or SCSI-2 16-bit Active Terminator (P/N 32G3918).
8. Provides a black 3U, 19" rack or NetBAY3 mountable tape enclosure. Provides two full high (FH) or four half high (HH) extended length 5.25" bays. External connector is 0.8-mm VHDCI. Includes two power supplies and two power cords.
9. Installs in a 3551001. Provides repeater function and LVDS interface allowing longer cable lengths and auto-termination when the 3551001 is powered off.
10. Provides a black desktop DLT tape enclosure with a 68-pin high density external connector. Requires termination by the tape drive or by installation of a SCSI-2 16-bit Active Terminator (P/N 32G3918).
11. Tape library attributes and prerequisites are located in Appendix B: Tape Library Attributes.

NOTE: SCSI support for tape drives is provided by system unit onboard (standard) controller (no-RAID function) or PCI Fast Wide Ultra SCSI Adapter P/N 02K3454. Additional tape attributes can be found in Appendix A: Tape Drive Attributes.

Sample Configurations

Note: The following sample configurations are for illustration only and may not be suitable for any specific customer installation. Contact your IBM Business Partner or IBM Marketing Representative for assistance with your specific configuration requirements.

High Availability

Part Number	Description	Quantity	Usage
8662-31Y	Netfinity 5500 M20 (Pentium III Xeon 500/512 KB 256 MB Tower & NetBAY3)	1	-
01K8053	Netfinity 9.1 GB Wide Ultra SCSI SCA-2 SL HDD	2	NOS on mirrored HDD's
36L9806	Netfinity 9.1 GB 10K-3 Wide Ultra SCSI Hot-Swap SL HDD	4	RAID 5 with Hot-Spare
01K1320	20/40 GB DLT Internal SCSI Tape Drive	1	-
7852400	External V.34 Data/Fax Modem	1	Remote Management
01K7953	Netfinity 500W Hot-Swap Redundant Power Supply	1	-
10L6912	Netfinity NetBAY3	1	Enclosure for second UPS
94G6674	APC Smart-UPS 1400RMB[1]	2	Redundant UPS's
65464AN	G54 Color Monitor 15" (348 mm, 13.7" Viewable Image Size), stealth black	1	-

1. Even though a second UPS provides a redundant power source, systems management software does not currently take advantage of its power outage alerts.

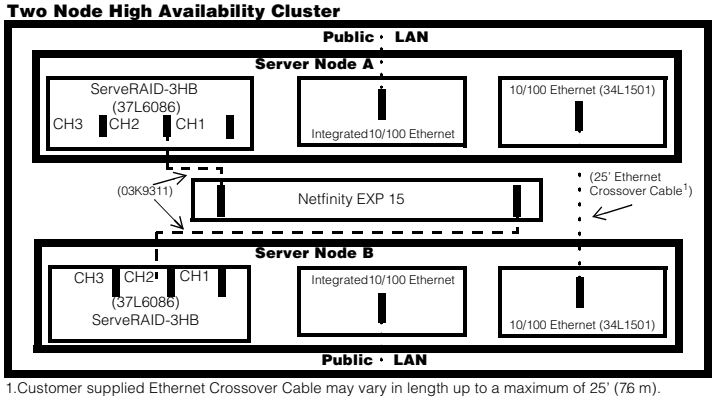
This tower server is configured to act as the foundation for business critical applications, applications your business cannot afford to be without. Configured with enough disk drives to mirror the operating system and provide a standard RAID 5 environment for data, optional hot-swap redundant power and redundant UPSs for power even during a blackout or in the event of a UPS or power cord failure, this server represents the leading edge in high availability. An internal tape drive is included to back-up that all important asset..... data, and a modem is included to allow out-of-band (non-LAN) system management utilizing the Netfinity Advanced System Management Processor.

Consolidation Server

Part Number	Description	Quantity	Usage
8662-61Y	Netfinity 5500 M20 (Pentium III Xeon 550/1 MB 256 MB Tower & NetBAY3)	1	-
33L5108	Netfinity 550 MHz/1 MB Upgrade with Pentium III Xeon Processor	3	-
01K7263	512 MB SDRAMM ECC RDIMM	3	Total Memory: 2GB
01K8043	256 MB SDRAMM ECC RDIMM	1	Total Memory: 2GB
02K0440	Netfinity 18.2 GB Wide Ultra SCSI Hot-Swap SL HDD	6	> 100GB Interal Storage
00N7990	40/80 GB DLT Internal SCSI Tape Drive	1	-
01K7953	Netfinity 500W Hot-Swap Redundant Power Supply	1	-
94G6676	APC Smart-UPS 3000RMB	1	Installed in NetBAY3
65464AN	G54 Color Monitor 15" (348 mm, 13.7" Viewable Image Size), stealth black	1	-

This tower model is configured to meet the need of server consolidation. Many businesses are trying to get their arms around the dispersed departmental servers that have grown-up around the enterprise. By moving multiple servers onto one platform there is only one system to manage, both hardware and software. There is potentially less expensive for service, software licenses, etc., and there is no need to worry about putting all your eggs in one basket because the Netfinity 5500 M20 is designed for high availability. This configuration can accommodate over 100 GB of data storage, features a second power supply which provides fully redundant power, a UPS to insure the system continues to run even if there is a momentary electricity loss, and an internal tape drive that backs up to 70 GB per tape...in addition to all the standard features of the Netfinity 5500 M20.

Two Node High Availability Cluster



1.Customer supplied Ethernet Crossover Cable may vary in length up to a maximum of 25' (76 m).

Two Node High Availability Cluster

Part Number	Description	Quantity.	Usage
	Server Nodes A & B		
8662-6RY	Netfinity 5500 M20 (Pentium III Xeon 550/1 MB 256 MB Rack)	2	-
33L5108	Netfinity 550 MHz/1 MB Upgrade with Pentium III Xeon Processor	2	Dual SMP Processing
01K7262	Netfinity 128 MB SDRAM ECC RDIMM	2	Total Memory: 384 MB (each)
01K8053	Netfinity 9.1 GB Wide Ultra SCSI SCA-2 SL HDD	4	NOS on mirrored HDDs
37L6086	Netfinity ServeRAID-3HB Ultra2 SCSI Adapter[2]	2	Three channels for EXP15s
34L1501	Netfinity 10/100 Ethernet PCI Adapter 2[1]	2	Private Interconnect
00N7990	40/80 GB DLT Internal SCSI Tape Drive		
02K3454	PCI Fast/Wide Ultra SCSI Adapter	1	Tape Drive Controller
7852400	External V.34 Data/Fax Modem	2	Remote Management
01K7953	Netfinity 500W Hot-Swap Redundant Power Supply	2	-
94G6676	APC Smart-UPS 3000RMB (3U)	2	-
	Storage Expansion Unit		
35202RU	Netfinity EXP15[2] (3U)	1	-
01K7959	Netfinity EXP10 9.1 GB Wide Ultra SCSI SCA-2 HDD[2]	5	RAID 5 Shared Storage
03K9311	Netfinity 4.2M Ultra2 SCSI Cable[2]	2	Attach EXP15 to Servers
	Shared (or single occurrence) Resources		
9513AG1	T55 Flat Panel Color Monitor (381 mm, 15.0" Viewable Image Size), stealth black	1	Mounts in keyboard tray
28L3644	Space Saver II Keyboard	1	Mounts in keyboard tray
	Industry Standard 19" Rack, EIA-310D, Min. depth of 28"		
9306900	9306-900 Netfinity Rack	1	-
28L4707	Netfinity Rack Keyboard Tray	1	-
37L6857	Netfinity Flat Panel Monitor Rack-Mount Kit (3U)	1	Mounts in keyboard tray
28L0542	Netfinity Console Server Selector Switch (4-port)	1	-
94G6667	Power Cable-Type A14[3]	3	-
94G7447	12ft. Console Cable Set	2	-
94G6669	Side Panel Kit	1	-
94G6670	Blank Filler Kit	2	-

1. Requires customer supplied Ethernet Crossover Cable which may vary in length up to a maximum of 25' (7.6 m).
2. By replicating these items, up to a total quantity of four ServeRAID-3HB Adapters (plus options) and eleven EXP15s can provide over 2 Terabytes of storage. Additional power and rack space will be required.
3. Cable length requirements are dependent on component placement within the rack or rack suite. To determine specific configuration requirements use the Netfinity Rack Configurator which is downloadable from the Web site www.ibm.com/pc/us/netfinity/tech_library.html "Configuration Tools".

Clustering is a group of interconnected computers used as a single, unified computing resource. Clustering Netfinity servers, like the IBM Netfinity 5500 M20, provides a high availability solution to keep you in touch with the key applications you need to run your business.

This sample configuration consists of paired IBM Netfinity 5500 M20 cluster nodes equipped with two of the possible four SMP processors and redundant power supplies. Microsoft Cluster Service (MSCS) has been validated on IBM Netfinity 5500 M20 servers, using the Netfinity ServeRAID-3HB with the EXP15 Storage Expansion Unit. MSCS allows two configured servers, referred to as nodes, to be connected together to form a cluster. Providing system redundancy means that a complete server can fail and client access to server resources is largely unaffected. MSCS extends this theme by also allowing for software failures at an application level as well as an operating system level. If the operating system fails, all applications and services can be restarted on another server, and if just one application fails, it can be managed by MSCS individually. An additional independent network connection is used to perform monitoring within the cluster. One or more disk subsystems are attached to both nodes. In the above example, a Netfinity EXP15 was selected and the IBM ServeRAID-3HB Ultra2 SCSI Adapters provide the I/O control. Netfinity ServeRAID-3HB handles the "SCSI heartbeat" connection without the need for a dedicated SCSI connection and logically attaches the quorum disk, which allows arbitration when a failure occurs. Additional information on IBM Netfinity and IBM PC Server Clustering Solutions may be found on the World Wide Web by accessing URL www.ibm.com/pc/us/netfinity/clustering.html.

IBM Netfinity 5600 Configurator

Part Number	Withdrawal Date (mmddyy)[6]	Processor Speed (MHz)[2]	Number of Processors (Std./Max)	L2 ECC Cache (KB)	Memory (Std./Max) (R = RDIMM)	Form Factor	Power Supply Quantity (Std./Max)	Hot-Swap (Power, Slots, HDD, Fans)	Redundancy (Optional, Standard)	Adv. System Management Processor	Onboard Ethernet (Mbps)	SCSI Controller (Dual, Ultra, RAID)	Removable Media Bays (Total/Avail)	Internal Hard Disk Drive (Std./Max)	CD-ROM (IDE)	Bays: (Total/Avail)	Slots: (Total/Avail)
8664-11Y	042800	533 EB	1/2	256	128 MB(R)/4 GB[3]	Tower	2/3	P, S,H,F	S-Power[4] S-Fans	Y	10/100	D,U2	4/2	0/218 GB	40X- 17X[5]	10/8	5/5
8664-1RY[1]	042800	533 EB	1/2	256	128 MB(R)/4 GB[3]	Rack (5U)	2/3	P, S,H,F	S-Power[4] S-Fans	Y	10/100	D,U2	4/2	0/218 GB	40X- 17X[5]	10/8	5/5
8664-21Y	-	600 EB	1/2	256	128 MB(R)/4 GB[3]	Tower	2/3	P, S,H,F	S-Power[4] S-Fans	Y	10/100	D,U2	4/2	0/218 GB	40X- 17X[5]	10/8	5/5
8664-2RY[1]	-	600 EB	1/2	256	128 MB(R)/4 GB[3]	Rack (5U)	2/3	P, S,H,F	S-Power[4] S-Fans	Y	10/100	D,U2	4/2	0/218 GB	40X- 17X[5]	10/8	5/5
8664-31Y	-	667	1/2	256	256 MB(R)/4 GB[3]	Tower	2/3	P, S,H,F	S-Power[4] S-Fans	Y	10/100	D,U2	4/2	0/218 GB	40X- 17X[5]	10/8	5/5
8664-3R[1]Y	-	667	1/2	256	256 MB(R)/4 GB[3]	Rack (5U)	2/3	P, S,H,F	S-Power[4] S-Fans	Y	10/100	D,U2	4/2	0/218 GB	40X- 17X[5]	10/8	5/5
8664-41Y	-	733	1/2	256	256 MB(R)/4 GB[3]	Tower	2/3	P, S,H,F	S-Power[4] S-Fans	Y	10/100	D,U2	4/2	0/218 GB	40X- 17X[5]	10/8	5/5
8664-4RY[1]	-	733	1/2	256	256 MB(R)/4 GB[3]	Rack (5U)	2/3	P, S,H,F	S-Power[4] S-Fans	Y	10/100	D,U2	4/2	0/218 GB	40X- 17X[5]	10/8	5/5
8664-51Y	-	800	1/2	256	256 MB(R)/4 GB[3]	Tower	2/3	P, S,H,F	S-Power[4] S-Fans	Y	10/100	D,U2	4/2	0/218 GB	40X- 17X[5]	10/8	5/5
8664-5RY[1]	-	800	1/2	256	256 MB(R)/4 GB[3]	Rack (5U)	2/3	P, S,H,F	S-Power[4] S-Fans	Y	10/100	D,U2	4/2	0/218 GB	40X- 17X[5]	10/8	5/5

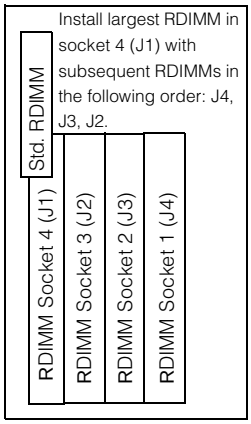
1. Housed in a 19" Rack mountable drawer and ships standard without a keyboard or mouse. See "Rack and NetBAY" under "Netfinity 5600 Power, Monitor & Accessories" for supported IBM racks.
2. Intel Pentium III processor with 133 Mhz front-side bus (FSB). Intel uses EB to designate the attributes of the 533 MHz and 600 MHz processors. E stands for advanced transfer (full-speed) cache and B stands for 133 MHz front-side bus.
3. High-speed, 133 MHz SDRAM.
4. Robust configurations may require optional Netfinity 250W Hot-Swap Redundant Power Supply (P/N 33L3760) for redundancy. See "Power" under "Netfinity 5600 Power, Monitor & Accessories" for additional information.
5. Variable read rate. Actual playback speed will vary and is often less than the maximum possible.
6. Not available from IBM after this date. Business Partner inventory may be available.

Netfinity 5600 Processor Upgrades

Part Number	Processor Upgrades with 512 KB Cache (Full Speed)	SMP Support[1]	Processor Speed Upgrade[2]
10K2168	Netfinity 533EB MHz 133 FSB/256 KB Upgrade with Pentium III Processor	1xY	-
00N7948	Netfinity 600EB MHz 133 FSB/256 KB Upgrade with Pentium III Processor	2xY	All 1xY
00N7949	Netfinity 667 MHz 133 FSB/256 KB Upgrade with Pentium III Processor	3xY	All 1...2xY
00N7943	Netfinity 733 MHz 133 FSB/256 KB Upgrade with Pentium III Processor	4xY	All 1...3xY
10K2338	Netfinity 800 MHz 133 FSB/256 KB Upgrade with Pentium III Processor	5xY	All 1...4xY

1. One additional processor may be installed, providing a maximum of two. All processors must be identical in type, speed, and cache size.
2. Requires removal of the standard processor. A maximum of two processors may be installed. All processors must be identical in type, speed and cache size. Upgrades may require a BIOS update. To obtain the latest Flash BIOS, access www.ibm.com/pc/support and enter machine "Type-Model" in Quick Path. Select "Downloadable files" and then "BIOS".

Netfinity 5600 Memory


Std. RDIMM
Install largest RDIMM in socket 4 (J1) with subsequent RDIMMs in the following order: J4, J3, J2.
RDIMM Socket 4 (J1)
RDIMM Socket 3 (J2)
RDIMM Socket 2 (J3)
RDIMM Socket 1 (J4)

Total Memory[1]	Quantity of RDIMMs Added			
128 MB (1 x 128) Models	128 MB (33L3058)	256 MB (33L3060)	512 MB (33L3062)	1 GB (33L3064)
256 MB	1	-	-	-
384 MB	2 or	1	-	-
512 MB	3	-	-	-
640 MB	-	2 or	1	-
896 MB	-	3	-	-
1024 MB	-	4[2]	-	-
1152 MB	-	-	2 or	1
1664 MB	-	-	3	-
2048 MB	-	-	4[2]	-
2176MB	-	-	-	2
3200 MB	-	-	-	3
4096 MB (max)	-	-	-	4[2]

This table does not represent all possible memory configurations.
1. Network Operating Systems may limit the maximum amount of addressable memory. See operating system specifications for further information.
2. Requires removal of standard memory.

Part Number	Memory Description[1]
33L3058	Netfinity 128 MB, 133 MHz SDRAM ECC RDIMM
33L3060	Netfinity 256 MB, 133 MHz SDRAM ECC RDIMM
33L3062	Netfinity 512 MB, 133 MHz SDRAM ECC RDIMM
33L3064	Netfinity 1 GB, 133 MHz SDRAM ECC RDIMM[2]

1. Install largest RDIMM in socket 4 (J1) with subsequent RDIMMs in the following order: J4, J3, J2.

Netfinity 5600 Hard Disk Drive (HDD) Storage

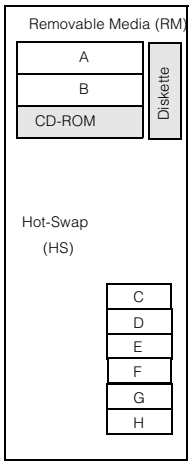
Total Int. Storage[1]	7200RPM Hard Disk Drives (HDDs)			10,000RPM Hard Disk Drives (HDDs)		
	9.1 GB (P/N 36L9744 or P/N 37L7201)[2]	18.2 GB (P/N 36L9745 or P/N 37L7202)[2]	36.4 GB (P/N 36L9746 or 37L7203)[2]	9.1 GB (P/N 36L9748 or P/N 37L7204)[2]	18.2 GB (P/N 36L9749 or P/N 37L7205)[2]	36.4 GB (P/N 36L9750 or 37L7206)[2]
0 GB	Standard on Base Models			Standard on Base Models		
9.1 GB	1	-	-	1	-	-
18.2 GB	2	1	-	2	1	-
27.3 GB	3	-	-	3	-	-
36.4 GB	4	2	1	4	2	1
45.5 GB	5	-	-	5	-	-
54.6 GB	6	3	-	6	3	-
72.8 GB	-	4	2	-	4	2
91 GB	-	5	-	-	5	-
109.2 GB	-	6	3	-	6	3
145.6 GB	-	-	4[3]	-	-	4[3]
182 GB	-	-	5[3]	-	-	5[3]
218.4 GB (max.)	-	-	6[3]	-	-	6[3]

This table does not represent all possible hard drive configurations.
1. Select a total storage row then select the quantity of HDDs from a column corresponding to the hard disk drive of choice. Total Internal Storage listed is within +/- 0.2 GB unless otherwise noted.
2.Ultra160 HDDs are limited to a maximum of Ultra2 bus speeds.
3. Part numbers 36L9746 and 36L9750 are half-high devices and therefore cannot be utilized for configurations requiring greater than a quantity of three.

Bay	Form Factor	Height	Front Access	Usage
A	133 mm (5.25")	HH[1]	Yes	Open
B	133 mm (5.25")	HH[1]	Yes	Open
-	133 mm (5.25")	HH	Yes	IDE CD-ROM
-	89 mm (3.5")	SL	Yes	Diskette
C…H	HS	SL[2]	Yes	Open

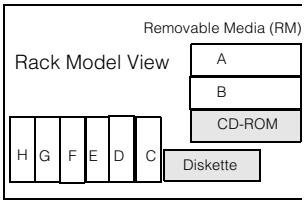
1. Two half-high (HH) bays can be combined to support a single full-high (FH) device
2. Two slim-line (SL) bays can be combined to support a single half-high (HH) device.

Tower Model View



For clarity purposes, bay labels in these diagrams are for reference by the accompanying tables and are not the actual labels. Refer to the documentation shipped with the system for further details on actual labels.

Rack Model View



Part Number	Description	RPM	Height	Bays Supported	Max. Qty.
	Ultra2 Hard Disk Drives (HDD)				
36L9744	Netfinity 9.1 GB Wide Ultra2 SCSI Hot-Swap SL HDD	7200	SL	C…H	6
36L9745	Netfinity 18.2 GB Wide Ultra2 SCSI Hot-Swap SL HDD	7200	SL	C…H	6
36L9746	Netfinity 36.4 GB Wide Ultra2 SCSI Hot-Swap HDD	7200	HH[2]	C/D, E/F, G/H	3
36L9748	Netfinity 9.1 GB 10K-3 Wide Ultra2 SCSI Hot-Swap SL HDD	10,000	SL	C…H	6
36L9749	Netfinity 18.2 GB 10K-3 Wide Ultra2 SCSI Hot-Swap SL HDD	10,000	SL	C…H	6
36L9750	Netfinity 36.4 GB 10K-3 Wide Ultra2 SCSI Hot-Swap HDD	10,000	HH[2]	C/D, E/F, G/H	3
	Ultra160 Hard Disk Drives (HDD)[1]				
37L7201	Netfinity 9.1 GB Ultra160 SCSI Hot-Swap SL HDD	7200	SL	C…H	6
37L7202	Netfinity 18.2 GB Ultra160 SCSI Hot-Swap SL HDD	7200	SL	C…H	6
37L7203	Netfinity 36.4 GB Ultra160 SCSI Hot-Swap SL HDD[7]	7200	SL	C…H	6
37L7204	Netfinity 9.1 GB 10K-4 Ultra160 SCSI Hot-Swap SL HDD[8]	10,000	SL	C…H	6
37L7205	Netfinity 18.2 GB 10K-4 Ultra160 SCSI Hot-Swap SL HDD[8]	10,000	SL	C…H	6
37L7206	Netfinity 36.4 GB 10-K Ultra160 SCSI Hot-Swap SL HDD[8]	10,000	SL	C…H	6

	External Storage Expansion Units[3]	Form Factor
35202RU	Netfinity EXP15 Storage Expansion Unit	Rack (3U)
35301RU	Netfinity EXP200 Storage Expansion Unit[4]	Rack (3U)
37L5857	Netfinity EXP200 Rack-to-Tower Conversion Kit	Tower
37L0075	Netfinity EXP200 350 W Redundant Power Supply	-
35311RU	Netfinity EXP300 Storage Expansion Unit[5, 8]	Rack (3U)
09N7296	Netfinity EXP300 Rack-to-Tower Conversion Kit[8]	-
35601RU	Netfinity FAStT EXP500 Storage Expansion Unit[6]	Rack (3U)

1. Ultra160 HDDs are limited to a maximum of Ultra2 bus speeds.
2. Two slim-line (SL) bays can be combined to support a single half-high (HH) device.
3. Not supported by the onboard external SCSI port. Select an optional SCSI controller then refer to see Appendix D: Cables-Storage Units-Controllers to confirm the controller supports the desired External Storage Expansion Unit and to select a supported cable. For HDD or other expansion unit options, see the specific expansion unit section.
4. Netfinity EXP200 includes a single 2 M Ultra2 SCSI cable and a single hot-swap 350W power supply and power cord. Optional hot-swap Netfinity EXP 350 W Redundant Power Supply (P/N 37L0075) includes an additional power cord. To convert and EXP200 to a tower form factor, Netfinity EXP200 Rack-to-Tower Conversion Kit (P/N 09N7296) is required.
5. Netfinity EXP300 includes a single 2 M Ultra2 SCSI cable and dual hot-swap 500 W redundant power supplies, each with its own power cord. To convert an EXP300 to a tower form factor, Netfinity EXP300 Rack-to-Tower Conversion Kit (P/N 09N7296) is required.
6. Netfinity FAStT EXP500 Storage Expansion Unit (P/N 35601RU) includes dual hot-swap 350 W power supplies, each with its own power cord.
7. Planned availability of June 1, 2000.
8. Planned availability of June 30, 2000.

Internal SCSI Cabling

The Netfinity 5600 contains a backplane supporting six hot-swap drive bays. The backplane is connected to the integrated dual channel, wide Ultra2 SCSI controller connector through a 16-bit LVD SCSI cable. If internal RAID support is required, this cable can be used to connect to a supported RAID adapter rather than the integrated SCSI controller. A two-drop, 16-bit SCSI cable with integrated terminator is also included with the server to support up to two internal removable media devices. This cable can be attached to the integrated SCSI controller if a RAID adapter is used to support the internal hot-swap drive bays. It can also be used to

attach to a supported SCSI adapter if the integrated Ultra2 SCSI controller is utilized for the hot-swap bays. The second channel is available through an industry-standard 0.8-mm very high density connector interface (VHDCI) located on the rear panel for external use.

Netfinity 5600 I/O Options

Part Number	Description	Adapter Length	PCI Support	Slots Supported	Hot-Plug[2]
	Storage Controllers[1]				
01K7364	Netfinity ServeRAID-3L Ultra2 SCSI Adapter[3]	Full	32-bit	1...5	X
37L6086	Netfinity ServeRAID-3HB Ultra2 SCSI Adapter[4]	Full	32/64-bit	1...5	X
37L6091	Netfinity ServeRAID-4L Ultra160 SCSI Controller[5, 21]	Full	32/64-bit	1...5	X
37L6080	Netfinity ServeRAID-4M Ultra160 SCSI Controller[6, 21]	Full	32/64-bit	1...5	X
37L6889	Netfinity ServeRAID-4H Ultra160 SCSI Controller[7]	Full	32/64-bit	1...5	X
02K3454	PCI Fast/Wide Ultra SCSI Adapter	Half	32-bit	1...5	-
09L2123	Advanced SerialRAID/X Adapter	Full	32-bit	1...5[8]	-
	Fibre Storage Controllers and Options[9]				
01K7297	Netfinity Fibre Channel PCI Adapter	Half	32/64-bit	1...5	-
35261RU	Netfinity Fibre Channel RAID Controller Unit	-	-	-	-
01K7296	Netfinity Fibre Channel Failsafe RAID Controller	-	-	-	-
35231RU	Netfinity Fibre Channel Hub	-	-	-	-
00N6881	Netfinity FAStT Host Adapter	Half	32/64-bit	1...5	X
35521RU	Netfinity FAStT500 RAID Controller	-	-	-	-
2109S08	SAN Fibre Channel Switch, 8-Port	-	-	-	-
2109S16	SAN Fibre Channel Switch, 16-Port	-	-	-	-
	Networking[10]				
	Ethernet				
34L1501	Netfinity 10/100 Ethernet PCI Adapter 2	Half	32-bit	1...5	X
08L3341	Netfinity 10/100 Fault Tolerant Adapter	Half	32-bit	1...5	X
09N9901	10/100 EtherLink Server Adapter by 3Com	Half	32-bit	1...5	X
34L0301	Netfinity Gigabit Ethernet SX Adapter	Half	32/64-bit	1...5	X
	Token Ring				
34L0501	Token-Ring 100/16/4 High-Speed PCI Adapter	Half	32-bit	1...5	-
34L0601	Token-Ring 16/4 PCI Adapter 2	Half	32-bit	1...5	X
	Communications[11]				
33L4618	PCI V90 56K Data/Fax Modem[12]	Half	32-bit	1...5	-
37L14xx	Serial I/O SST 8, 16 and 128 Port Adapters[13]	Half	32-bit	1...5[13]	-
	Systems Management[14]				
01K7209	Netfinity Advanced System Management PCI Adapter[15]	Full	32-bit	1...5[16]	-
03K9309	Netfinity Advanced System Management Interconnect Cable Kit[17]	-	-	-	-
36L9654	Netfinity Advanced System Management Token-RIng Connection[18]	-	-	-	-
	Host Attach				
9086001	Netfinity ESCON Adapter[19]	Full	32-bit	1...5[20]	-

Rack Model

Slot 5- PCI, Hot-Plug, 32/64-bit, Full Length	Slot 4- PCI, Hot-Plug, 32/64-bit, Full Length	Slot 3- PCI, Hot-Plug, 32/64-bit, Full Length	Slot 2- PCI, 32-bit, Full Length	Slot 1- PCI, 32-bit, Full Length

1. Netfinity 5600 has two integrated Wide Ultra2 SCSI channels. One is internal and the other is external with a 0.8-mm Very High Density Connection Interface (VHDCI).
2. Three of the five PCI slots are 32/64-bit hot-plug capable using IBM's Active PCI technology. For Network Operating System support access URL www.ibm.com/pc/us/compat.
3. Netfinity ServeRAID-3L Ultra2 SCSI Adapter (P/N 01K7364) provides either one internal or one external (0.8-mm VHDCI) LVDS SCSI channel.
4. Netfinity ServeRAID-3HB Ultra2 SCSI Adapter (P/N 37L6086) provides one internal and 2 external (0.8-mm VHDCI) LVDS SCSI channels. The internal channel can be configured for external usage (0.8-mm VHDCI connector) providing a total of 3 external LVDS SCSI channels. Includes 32MB of mirrored battery-backup cache which helps protect against data loss in write-back cache mode in the event of a power outage or adapter maintenance.
5. Netfinity ServeRAID-4L Ultra160 SCSI Controller is powered by a 100 MHz Intel i960 processor and provides a single channel, 16 MB of ECC cache and one internal or one external Ultra160 connection. External connectors are 0.8-mm VHDCI.
6. Netfinity ServeRAID-4M Ultra160 SCSI Controller is powered by a 100 MHz Intel i960 processor and provides two channels, 64 MB of battery-backed ECC cache and two internal and two external Ultra160 connectors (only two connectors may be utilized). External connectors are 0.8-mm VHDCI.
7. Netfinity ServeRAID-4H Ultra160 SCSI Controller is powered by a 266 MHz PowerPC 750 processor and provides 128 MB of battery-backed ECC cache with two internal and up to four external Ultra160 connectors (only four connectors may be utilized). External connectors are 0.8-mm VHDCI.
8. A maximum quantity of four is supported.
9. See Netfinity Fibre Array Solutions section for additional configuration information.
10. Netfinity 5600 has an integrated 10/100 PCI Ethernet Controller.
11. Netfinity 5600 includes two USB ports, three high-speed serial/asynchronous ports, (two NS16550A compatible, one for the Advanced System Management Processor), and one high-speed (up to 2 MB/sec. data transfer speed) bi-directional parallel port supporting devices using ECP/EPP/SSP protocols adhering to the IEEE 1284 standard.
12. Due to homologation variances, modem availability may differ by country.
13. See Appendix E for details on Serial I/O options and configuration limitations. A maximum of four Serial I/O adapters (any combination of P/N 37L1414, 37L1415, 37L1416, 37L1423) may be installed.

14. The Netfinity Advanced Systems Management Processor and Interconnect Bus integrated into Netfinity 5600 works with Netfinity Manager to provide significant system management function. When used with optional Netfinity Advanced System Management PCI Adapter (P/N 01K7209) and Netfinity Advanced System Management Interconnect Cable Kit (P/N 03K9309) additional management and control of up to 12 service processors from a remote console through a single modem or LAN connection is possible.
15. Includes PCI adapter, Netfinity Advanced System Management Interconnect Cable Kit components and 56-watt AC adapter which requires a separate power source. Provides an integrated 10/100 Ethernet port and PCMCIA slot to support optional Netfinity Advanced System Management Token-Ring Connection (P/N 36L9654).
16. A maximum quantity of one is supported.
17. Required for all Netfinity servers containing a standard Advanced System Management Processor that are to be interconnected for system management support through a LAN or modem connection (Netfinity 5500 models 8660- 1...4xU are not supported). Optional Netfinity Advanced System Management PCI Adapter (P/N 01K7209) includes the content of this option. Up to 12 service processors may be interconnected (including standard and optional processors) with an aggregate connection length of no more than 91.4 meters (300 ft.). A customer-supplied Ethernet cable is required for each interconnection.
18. Contains an IBM Turbo 16/4 Token-Ring PCI Card, which installs in the PCMCIA card slot of Netfinity Advanced System Management PCI Adapter (P/N 01K7209), and a PC Card to 9-pin D-Shell cable which is routed to a rear chassis cut-out. The Netfinity Advanced System Management PCI Adapter integrated Ethernet port and Netfinity Advanced System Management Token-Ring Connection cannot be connected or used together.
19. Provides an ESCON MIC and DB9 Serial Port. Cables are not included but are available through S/390 channels. Contact your IBM representative for additional information.
20. A maximum of two 9086001 adapters (installed in non-adjacent slots) are supported in a single Netfinity server.
21. Planned availability of June 30, 2000.

Netfinity 5600 Power, Monitor & Accessories

Part Number	Description
	Power[1]
33L3760	Netfinity 250 W Hot-Swap Redundant Power Supply
	Uninterruptable Power Supply (UPS)[2]
94G3135	APC Smart-UPS 1000
94G3136	APC Smart-UPS 1400
94G6674	APC Smart-UPS 1400RMB[3]
94G6676	APC Smart-UPS 3000RMB[3]
37L6861	APC Smart-UPS 5000RMB[8]
	Monitors[4]
65464AN	G54 Color M5nitor 15" (348 mm, 13.7" Viewable Image Size), stealth black[5]
65474AN	G74 Color Monitor 17" (403 mm, 15.9" Viewable Image Size), stealth black[5]
6331B2N	E54 Color Monitor 15" (350-mm, 13.8" Viewable Image Size), stealth black[5]
6332J1N	E74 Color Monitor 17" (403-mm, 15.9" Viewable Image Size), stealth black[5]
654841N	G76 Color Monitor 17" (406-mm, 16" Viewable Image Size), stealth black[5]
65494AN	G96 Color Monitor 19" (454 mm, 17.9" Viewable Image Size), stealth black[7]
9513AG1	T55A Flat Panel Color Monitor (381 mm, 15.0" Viewable Image Size), stealth black[6]
9519AG1	T85A Flat Panel Color Monitor (459-mm, 18.1" Viewable Image Size), stealth black[7]

1. Netfinity 5600 includes two 250W hot-swap power supplies, each with its own power cord. These standard power supplies are sufficient to operate fully configured systems; however optional Netfinity 250W Hot-Swap Redundant Power Supply (P/N 33L3760) is required to preserve redundancy if any of the following are exceeded:

Single Processor Configuration

- Six SL hard disk drive (HDDs) and two PCI adapters
  (1 HH HDD = 2 SL, 1 tape = 2 SL, 1 PCI adapter = 2 SL)
  e.g. To preserve power supply redundancy with 3 PCI adapters only 4 SL HDDs can be installed before an optional power supply is required.

Dual Processor Configuration

-Four SL hard disk drives (HDDs) and two PCI adapters
(1 HH HDD = 2 SL, 1 tape = 2 SL, 1 PCI adapter = 2 SL)

A "non-redundant" LED on the system unit will indicate when 250W has been exceeded. Netfinity 250 W Hot-Swap Redundant Power Supply (P/N 33L3760) includes a power cord which requires an additional power source. An independent power source such as a second UPS or second circuit is not required.
2. For runtimes and UPS attributes see Appendix C: UPS Runtime Estimate.
3. Height is 3U. See "Rack and NetBAY" for supported IBM racks.
4. Netfinity 5600 uses an SVGA controller (S3 Trio 3D chipset) with 4 MB of video memory.
5. Installation within a rack requires optional Monitor Compartment (P/N 94G7444).
6. Installation within a rack requires optional Netfinity Flat Panel Monitor Rack Mount Kit (P/N 37L6857) and Netfinity Rack Keyboard Tray (P/N 28L4707). A space saver keyboard may coexist within the same 28L4707 keyboard tray.
7. Not supported for installation in a 19" rack.
8. Height is 5U. See "Rack and NetBAY" for supported IBM racks.

Part Number	Description
	Conversion Kits
37L6858	Netfinity 5Ux24D Tower-to-Rack Kit
	Rack and NetBAY[1]
930842P	Netfinity Enterprise Rack
930842X	Netfinity Enterprise Expansion Cabinet
9306900	Netfinity Rack
9306200	Netfinity NetBAY22
	Keyboard and Mouse[2]
28L3644	Space Saver II Keyboard[3, 5]
01K1260	TrackPoint IV 104-Key Black Keyboard[4,5]
28L3621	Preferred Keyboard (stealth black)[4]
28L3673	Sleek 2-Button Stealth Black Mouse

1. Netfinity 5600 rack models are housed in a 19" rack mountable drawer and require one of the racks listed here. See IBM Netfinity Rack Cabinet and Options section for IBM rack supported devices.
2. Tower models include both a mouse and a keyboard. Rack models include neither.
3. Installation within a rack requires optional keyboard tray P/N 28L4707 (stows in "ready-to-use" position).
4. Installation within a rack requires optional keyboard tray P/N 28L4707. This keyboard cannot share a keyboard tray with a flat panel display.
5. Advanced TrackPoint IV features are not available on IBM Netfinity systems.

Netfinity 5600 Tape Options

Part Number	Tape Drives[2]	Bays Supported	SCSI Interface (bit)	Form Factor	Termination Included	68/50-pin Converter Incl.	Ext. Tape Enclosures[1]
00N7991	20/40 GB DDS/4 4-mm Internal Tape Drive	A, B	16 Ultra2 LVD[2]	89 mm (3.5") HH or 133 mm (5.25") HH	Y[3]	N	3510020, 3551001
01K1319	10/20 GB NS Internal SCSI Tape Drive	A, B	8	89 mm (3.5") SL or 133 mm (5.25") HH	Y[3]	Y	3510020, 3551001
01K1325	20/40 GB 8-mm Internal SCSI Tape Drive	A, B	16[2]	133 mm (5.25") FH	N[4]	N	3510020[5], 3551001
01K1320	20/40 GB DLT Internal SCSI Tape Drive	A/B[6]	8[2]	133 mm (5.25") FH	Y[7]	Y	3503B0X, 3551001
00N7990	40/80 GB DLT Internal SCSI Tape Drive	A/B[6]	16 Ultra2 LVD[2]	133 mm (5.25") FH	N[4]	N	3503B0X[5], 3551001
	Associated Options						
32G3918	SCSI-2 16-bit Active Terminator	-	16	External	Y	N	35O3B0X 3510020
	External Tape Enclosures						
3510020	External Half High SCSI Storage Enclosure[8]	-	8/16	Desktop	N	N	-
3551001	NetMEDIA Storage Expansion Unit EL[9]	-	16	Rack	Y	N	-
10L7113	NetMEDIA Systems Management Adapter[10]	-	16 LVD	-	N	N	3551001
3503B0X	DLT External SCSI Enclosure[11]	-	16	Desktop	N	N	-
	External Tape Libraries[12]						
3502108	DLT Tape Autoloader	-	16	Desktop	Y	-	-
3502x14	DLT Tape Library	-	16	Desktop or Rack	Y	-	-

1. To determine cable requirements, note the tape drive's SCSI interface, the appropriate SCSI controller from the system configurator section, and the desired enclosure, then refer to Appendix D: Cables-Storage Units-Controllers.
2. Netfinity 5600 includes a wide two-drop terminated cable which is used for attachment of internal tape drives to a PCI Fast/Wide Ultra SCSI Adapter (P/N 02K3454) or, in the case where the hot-swap backplane is attached to a RAID controller, it attaches to the onboard wide Ultra2 LVD controller. This cable does not support LVD mode of operation.
3. Tape drive is capable of self termination.
4. Termination is provided by the system unit's standard SCSI cabling.
5. Requires SCSI-2 16-bit Active Terminator (P/N 32G3918).
6. Two half-high bays can be combined to support a full-high device.
7. A 16-bit terminator is included for attachment to an internal cable.
8. Provides a black desktop 5.25" half-high (HH) tape enclosure. Connector is configurable as 50-pin Centronix or 68-pin high density. Requires either tape drive self termination or SCSI-2 16-bit Active Terminator (P/N 32G3918).
9. Provides a black 3U, 19" rack or NetBAY3 mountable tape enclosure. Provides two full high (FH) or four half high (HH) extended length 5.25" bays. External connector is 0.8-mm VHDCI. Includes two power supplies and two power cords.
10. Installs in 3551001. Provides repeater function and LVDS interface allowing longer cable lengths and auto-termination when the 3551001 is powered off.
11. Provides a black desktop DLT tape enclosure with a 68-pin high density external connector. Requires termination by the tape drive or by installation of a SCSI-2 16-bit Active Terminator (P/N 32G3918)
12. Tape library attributes and prerequisites are located in Appendix B: Tape Library Attributes.

NOTE: SCSI support for tape drives is provided by system unit onboard (standard) controller (no-RAID function) or PCI Fast Wide Ultra SCSI Adapter P/N 02K3454. Additional tape attributes can be found in Appendix A: Tape Drive Attributes.

For a complete list of all IBM and non-IBM option compatibility with Network Operating Systems and IBM Netfinity Servers, access the ServerProven™ compatibility pages on the Web at URL www.ibm.com/pc/us/compat.

Sample Configurations

Note: The following sample configurations are for illustration only and may not be suitable for any specific customer installation. Contact your IBM Business Partner or IBM Marketing Representative for assistance with your specific configuration requirements.

High Availability Application Server

Part Number	Description	Quantity	Usage
8664-41Y	Netfinity 5600 733 MHz/256 KB, 256 MB ECC, Open, 40X, PCI	1	-
33L3060	Netfinity 256 MB, 133 MHz SDRAM ECC RDIMM	1	512 MB total system memory
36L9744	Netfinity 9.1 GB Wide Ultra2 SCSI Hot-Swap SL HDD	2	9.1 mirrored for NOS
36L9749	Netfinity 18.2 GB 10K-3 Wide Ultra2 SCSI Hot-Swap SL HDD	4	36 GB RAID 5 with hot-spare
01K1325	20/40 GB 8-mm Internal SCSI Tape Drive	1	-
37L6086	Netfinity ServeRAID-3HB Ultra2 SCSI Adapter	1	RAID 1 for OS, RAID 5 for data
33L3760	Netfinity 250 W Hot-Swap Redundant Power Supply	1	Full power redundancy
65464AN	G54 Color Monitor 15" (348 mm, 13.7" Viewable Image Size), stealth black	1	
94G3135	APC Smart-UPS 1000	1	UPS

This tower server is configured to act as the foundation for business critical applications, applications your business cannot afford to be without. Configured with enough disk drives to mirror the operating system and provide a standard RAID 5 environment for data, optional hot-swap redundant power and UPS for power even during a blackout, this server represents the leading edge in high availability. An internal tape drive is included to back up that all important asset...data. A modem could be included to allow out-of-band (non-LAN) system management utilizing the integrated Netfinity Advanced System Management Processor.

High Availability File Server

Part Number	Description	Quantity	Usage
8664-51Y	Netfinity 5600 800 MHz/256KB, 256 MB ECC, Open, 40X, PCI	1	-
36L9744	Netfinity 9.1 GB Wide Ultra2 SCSI Hot-Swap SL HDD	6	45 GB available disk and one hot spare
01K1325	20/40 GB 8-mm Internal SCSI Tape Drive	1	
37L6086	Netfinity ServeRAID-3HB Ultra2 SCSI Adapter	1	RAID 5 array, with hot-spare
33L3760	Netfinity 250 W Hot-Swap Redundant Power Supply	1	Full power redundancy
65464AN	G54 Color Monitor 15" (348 mm, 13.7" Viewable Image Size), stealth black	1	-
94G3135	APC Smart-UPS 1000	1	-

This tower model is configured to meet the need of server consolidation. Many businesses are trying to get their arms around the dispersed departmental servers that have grown up around the enterprise. By moving multiple servers onto one platform there is only one system to manage, both hardware and software. There is potentially less expensive for service, software licenses, etc., and there is no need to worry about putting all your eggs in one basket because the Netfinity 5600 is designed for high availability. This configuration includes 56 GB of internal HDD storage, features a third power supply which provides fully redundant power, a UPS to help protect the system against a momentary electricity loss, and an internal tape drive that backs up, up to 40 GB per tape...in addition to all the standard features of the Netfinity 5600.

IBM Netfinity 7000 M10 Configurator

Part Number	Withdrawal Date (mmddyy)[8]	Processor Speed (MHz)[2]	Number of Processors Std./Max	L2 ECC Cache (KB)	Memory (Std/Max) (R=RDIMM)	Form Factor	Power Supply Quantity (Std/Max)	Hot-Swap (Power, Slots, HDD, Fans)	Redundancy (Optional, Standard)	Adv. System Management Processor[3]	Onboard Ethernet (Mbps)	SCSI Controller (Dual, Ultra, RAID)	Removable Media Bays (Total/Avail)	Internal Hard Disk Drive (Std/Max)	CD-ROM (IDE)	Bays (Total/Avail)	Slots (Total/Avail)
8680-6RY[1]	042800	500	1/4	512	256 MB/8 GB	Rack (11U)	2/3	P, S,H,F	S-Fans, S-Power[4]	Y	-	D,U	2/0	0/72.8 GB	32X-14X[5]	6/4	12/12
8680-7RY[1]	042800	500	1/4	1024	256 MB/8 GB	Rack (11U)	2/3	P, S,H,F	S-Fans, S-Power[4]	Y	-	D,U	2/0	0/72.8 GB	32X-14X[5]	6/4	12/12
8680-8RY[1]	042800	500	1/4	2048	256 MB/8 GB	Rack (11U)	2/3	P, S,H,F	S-Fans, S-Power[4]	Y	-	D,U	2/0	0/72.8 GB	32X-14X[5]	6/4	12/12
8680-1SY[1]	-	550	1/4	512	256 MB/8 GB	Rack (11U)	2/3	P, S,H,F	S-Fans, S-Power[4]	Y	-	D,U	2/0	0/72.8 GB	40X-17X[5]	6/4	12/12
8680-2SY[1]	-	550	1/4	1024	256 MB/8 GB	Rack (11U)	2/3	P, S,H,F	S-Fans, S-Power[4]	Y	-	D,U	2/0	0/72.8 GB	40X-17X[5]	6/4	12/12
8680-3SY[1]	-	550	1/4	2048	256 MB/8 GB	Rack (11U)	2/3	P, S,H,F	S-Fans, S-Power[4]	Y	-	D,U	2/0	0/72.8 GB	40X-17X[5]	6/4	12/12
8680-11Y[1, 6]	-	550	1/4	512	512 MB/4 GB[7]	Rack (11U)	2/3	P, S,H,F	S-Fans, S-Power[4]	Y	-	D,U	2/0	0/72.8 GB	40X-17X[5]	6/4	12/12
8680-21Y[1, 6]	-	550	1/4	1024	512 MB/4 GB[7]	Rack (11U)	2/3	P, S,H,F	S-Fans, S-Power[4]	Y	-	D,U	2/0	0/72.8 GB	40X-17X[5]	6/4	12/12

1. Housed in a 19" Rack mountable drawer and ships standard without a keyboard or mouse. See "Rack and NetBAY" under "Netfinity 7000 M10 Power, Monitor & Accessories" for supported IBM racks.
2. Intel Pentium III Xeon processor.
3. Netfinity 7000 M10 includes a systems management adapter equivalent to the one shipped with option 01K7209 (Netfinity Advanced System Management PCI Adapter).
4. Fully configured systems may require an optional 3rd power supply for redundancy. See footnote for Netfinity 400W Hot-Swap Redundant Supply II (P/N 01K7951) for requirements.
5. Variable read rate. Actual playback speed will vary and is often less than the maximum possible.
6. These models include Advanced Chipkill memory, which provides a 100x imporvement over standard ECC memory by detecting and correcting both single and double 4-bit memory errors.
7. The largest supported Chipkill memory expansion kit is 512 MB, which lowers the maximum "Chipkill" memory capacity to 4 GB.
8. Not available from IBM after this date. Business Partner inventory may be available.

Netfinity 7000 M10 Processor Upgrades

Part Number	Processor Upgrades with 512 KB, 1 MB or 2 MB Cache	SMP Support[1]	Processor Speed/Cache Upgrade[2]
01K8006	Netfinity 7000 M10 400 MHz, 512 KB Upgrade with Pentium II Xeon Processor	1RU	-
01K8007	Netfinity 7000 M10 400 MHz, 1 MB Upgrade with Pentium II Xeon Processor	2RU	All 1RU
10L5895	Netfinity 7000 M10 450 MHz, 512 KB Upgrade with Pentium II Xeon Processor	3RU	All 1...2RU
10L5896	Netfinity 7000 M10 450 MHz, 1 MB Upgrade with Pentium II Xeon Processor	4RU	All 1...3RU
10L5897	Netfinity 7000 M10 450 MHz, 2 MB Upgrade with Pentium II Xeon Processor	5RU	All 1...4RU
28L4733	Netfinity 7000 M10 500 MHz/512 KB Upgrade with Pentium III Xeon Processor	6RY	All 1...5RU
28L4734	Netfinity 7000 M10 500 MHz/1 MB Upgrade with Pentium III Xeon Processor	7RY	All 1...6Rx
28L4735	Netfinity 7000 M10 500 MHz/2 MB Upgrade with Pentium III Xeon Processor	8RY	All 1...7Rx
33L5107	Netfinity 550 MHz /512 KB Upgrade with Pentium III Xeon Processor	1xY	All xRx
33L5108	Netfinity 550 MHz /1 MB Upgrade with Pentium III Xeon Processor	2xY	All xRx, 1xY
33L5109	Netfinity 550 MHz /2 MB Upgrade with Pentium III Xeon Processor	3SY	All xRx, All 1...2xY

1. Up to three additional processors may be installed, providing a maximum of four. All processors must be identical in type, speed, and cache size.
2. Requires removal of the standard processor. A maximum of four processors may be installed. All processors must be identical in type, speed and cache size. Upgrades may require a BIOS update. To obtain the latest Flash BIOS, access www.ibm.com/pc/support and enter machine "Type-Model" in Quick Path. Select "Downloadable files" and then "BIOS".

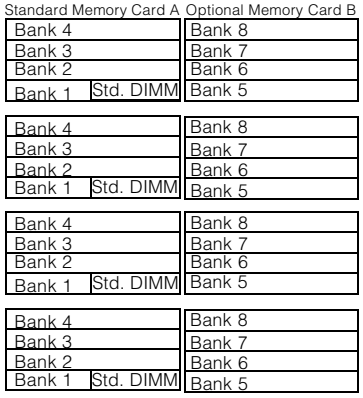
Netfinity 7000 M10 Memory

Total Memory[1]	Model 1RU	All Models (except 1RU and x1Y))	Chipkill Models x1Y
128 MB	4 x 32MB DIMMs Std.	-	-
256 MB	-	4 x 64MB DIMMs Std.	-
384 MB	1 x 01K8044	-	-
512 MB	-	1 x 01K8044[2]	4 x 128 MB DIMMs Standard
640 MB	1 x 01K8045	-	-
768 MB	-	1 x 01K8045	-
896 MB	3 x 01K8044	-	-
1024 MB	-	3 x 01K8044[3]	1 x 28L4732[2]
1408 MB	1 x 01K8044, 2 x 01K8045	-	-
1536 MB	-	1 x 01K8044, 2 x 01K8045[2]	2 x 28L4732[2]
2048 MB	4 x 01K8045[3, 4]	4 x 01K8045[3, 4]	3 x 28L4732[3]
3072 MB	2 x 01K8045, 2 x 01K8046[2, 4]	2 x 01K8045, 2 x 01K8046[2, 4]	5 x 28L4732, 1 x 01K8004[5]
4096 MB	4 x 01K8045, 2 x 01K8046, 1 x 01K8004[2, 4]	4 x 01K8045, 2 x 01K8046, 1 x 01K8004[2, 4]	7 x 28L4732, 1 x 01K8004[5]
5120 MB	4 x 01K8044, 4 x 01K8046, 1 x 01K8004[5, 6]	3 x 01K8044, 4 x 01K8046, 1 x 01K8004[5, 6]	-
6148 MB	4 x 01K8045, 4 x 01K8046, 1 x 01K8004[5, 6]	4 x 01K8045, 4 x 01K8046, 1 x 01K8004[5, 6]	-
8 GB (max)	8 x 01K8046, 1 x 01K8004[5, 6]	8 x 01K8046, 1 x 01K8004[5, 6]	-

This table does not represent all possible memory configurations.
NOTE: 8-way interleaving can be obtained by installing identical memory in one or more of the following adjacent bank pairs: 1/2, 3/4, 5/6, 7/8 or by installing memory in both the standard and optional (P/N 01K8004) memory cards, both being identically configured. Greater than 8-way interleaving can be obtained by combining both 8-way interleaving methods (adjacent banks and identical memory cards). Netfinity 7000 M10 will recognize optimized configurations at boot-up and enable appropriate interleaving.
1. Network Operating Systems may limit the maximum amount of addressable memory. See operating system specifications for further information.
2. Can be configured for 8-way interleaving.
3. Can be configured for 8-way interleaving or greater than 8-way with Netfinity 7000 M10 Memory Expansion Card (P/N 01K8004).
4. Assumes removal of standard memory DIMMs.
5. Can be configured for greater than 8-way interleaving.
6. Requires removal of standard memory DIMMs.

Part Number	Memory Description[1]
01K8044	Netfinity 7000 M10 256 MB Memory Expansion Kit - 4 x 64[2]
01K8045	Netfinity 7000 M10 512 MB Memory Expansion Kit - 4 x 128[2]
28L4732	Netfinity 7000 M10 512 MB Advanced Memory Expansion Kit (Chipkill) - 4 x 128[2, 3]
01K8046	Netfinity 7000 M10 1 GB Memory Expansion Kit - 4 x 256[2]
01K8004	Netfinity 7000 M10 Memory Expansion Card[4]

1. Memory is four-way interleaved 50 ns, EDO, ECC, 168-pin DIMMs. Properly configured memory options allow eight-way or greater interleaving
2. DIMM size must be consistent within a Bank. DIMM sizes may vary from Bank to Bank.
3. Advanced ECC DIMMs not only detect and correct single 4-bit memory errors, but detect and correct two 4-bit errors as well. These advanced memory DIMMs significantly improve reliability up to 100 times over current ECC technology. In order to provide this increased reliability for all installed memory, co-existience with other Netfinity 7000 M10 memory is not recommended.
4. Required for installation of DIMMs in Banks 5...8.



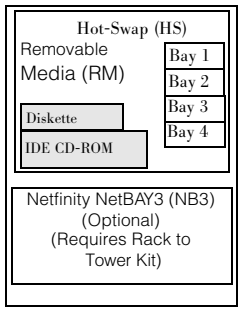
Netfinity 7000 M10 Hard Disk Drive (HDD) Storage

Total Internal Storage[1]	7200 RPM Hard Disk Drives (HDDs)			10,000 RPM HDDs		
	9.1 GB	18.2 GB	36.4 GB	9.1 GB	18.2 GB	36.4 GB
0 GB	Standard on Base Models			Standard on Base Models		
9.1 GB	1 x 01K8053	-		1 x 36L9806	-	-
18.2 GB	2 x 01K8053 or	1 x 02K0440		2 x 36L9806 or	1 x 36L9807	
27.2 GB	3 x 01K8053	-		3 x 36L9806	-	-
36.4 GB	4 x 01K8053 or	2 x 02K0440 or	1 x 02K0441	4 x 36L9806 or	2 x 36L9807 or	1 x 36L9808
54.6 GB	-	3 x 02K0440	-	-	3 x 36L9807	-
72.8 GB (max)	-	4 x 02K0440 or	2 x 02K0441	-	4 x 36L9807 or	2 x 36L9808

This table does not represent all possible hard drive configurations.
1. Total Internal Storage listed is within ± 0.2 GB unless otherwise noted.

Bay	Form Factor	Height	Front Access	Usage
-	89 mm (3.5")	SL	Yes	Diskette
-	133 mm (5.25")	HH	Yes	IDE CD-ROM
1...4	HS	SL[1]	Yes	Open
NB3[2]	19" Rack	3U	Yes	Open

1. Two slim-line (SL) bays can be combined to support a single half-high device.
2. A total of three optional 3U NetBAY3s can be stacked beneath a Netfinity 7000 M10 which has Netfinity 7000 M10 Rack-to-Tower Conversion Kit installed. See IBM Netfinity NetBAY3 Stackable Enclosure section for supported devices



Part Number	Description	RPM	Height	Bays Supported	Max Qty.
	Internal Hard Disk Drives (HDD)				
01K8053	Netfinity 9.1GB Wide Ultra SCSI SCA-2 SL HDD	7200	SL	1...4	4
02K0440	Netfinity 18.2 GB Wide Ultra SCSI Hot-Swap SL HDD	7200	SL	1...4	4
02K0441	Netfinity 36.4 GB Wide Ultra SCSI Hot-Swap HDD	7200	HH[1]	1/2, 3/4	2
36L9806	Netfinity 9.1 GB 10K-3 Wide Ultra SCSI Hot-Swap SL HDD	10,000	SL	1...4	4
36L9807	Netfinity 18.2 GB 10K-3 Wide Ultra SCSI Hot-Swap SL HDD	10,000	SL	1...4	4
36L9808	Netfinity 36.4 GB 10K-3 Wide Ultra SCSI Hot-Swap HDD	10,000	HH[1]	1/2, 3/4	2

	External Storage Expansion Units[2]	Form Factor
35202RU	Netfinity EXP15 Storage Expansion Unit	Rack (3U)
35301RU	Netfinity EXP200 Storage Expansion Unit[3]	Rack (3U
37L5857	Netfinity EXP200 Rack-to-Tower Conversion Kit	Tower
37L0075	Netfinity EXP200 350 W Redundant Power Supply	-
35311RU	Netfinity EXP300 Storage Expansion Unit[4, 6]	Rack (3U)
09N7296	Netfinity EXP300 Rack-to-Tower Conversion Kit[6]	-
35601RU	Netfinity FAStT EXP500 Storage Expansion Unit[5]	Rack (3U)

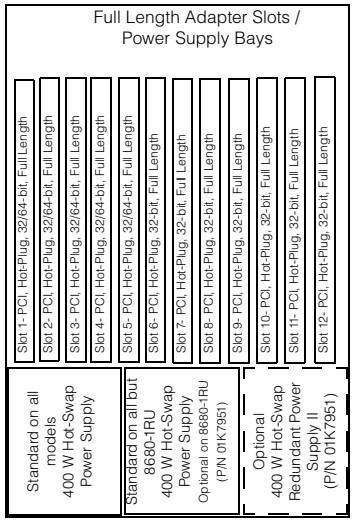
1. Two slim-line (SL) bays can be combined to support a single half-high (HH) device.
2. Not supported by the onboard external SCSI port. Select an optional SCSI controller then refer to see Appendix D: Cables-Storage Units-Controllers to confirm the controller supports the desired External Storage Expansion Unit and to select a supported cable. For HDD or other expansion unit options, see the specific expansion unit section.
3. Netfinity EXP200 includes a single 2 M Ultra2 SCSI cable and a single hot-swap 350 W power supply and power cord. Optional hot-swap Netfinity EXP200 350 W Redundant Power Supply (P/N 37L0075) includes an additional power cord. To convert an EXP200 to a tower form factor, Netfinity EXP200 Rack-to-Tower Conversion Kit (P/N 37L5857) is required.
4. Netfinity EXP300 includes a single 2 M Ultra2 SCSI cable and dual hot-swap 500 W power supplies, each with its own power cord. To convert an EXP300 to a tower form factor, Netfinity EXP300 Rack-to-Tower Conversion Kit (P/N 09N7296) is required.
5. Netfinity FAStT EXP500 Storage Expansion Unit (P/N 35601RU) includes dual hot-swap 350 W power supplies, each with its own power cord.
6. Planned availabilty of June 30, 2000.

Internal SCSI Cabling

Netfinity 7000 M10 systems contain a backplane supporting four hot-swap drive bays. The backplane is connected to one of the two onboard Ultra SCSI controllers through a 16-bit SCSI cable. If a RAID adapter or other supported SCSI adapter is installed for attachment to the internal hard disk drives, the 16-bit SCSI backplane cable is moved from the standard Ultra SCSI controller to the desired controller. The onboard external SCSI port contains a 0.8mm Very High Density Connection Interface (VHDCI) connector and can be used to attach up to 15 SCSI devices with the appropriate SCSI cable.

Netfinity 7000 M10 I/O Options

Part Number	Description	Adapter Length	PCI Support	Slots Supported[1]	Hot-Plug[2]
	Storage Controllers[3]				
01K7364	Netfinity ServeRAID-3L Ultra2 SCSI Adapter[4]	Full	32-bit	1…12[5]	X
37L6086	Netfinity ServeRAID 3-HB Ultra2 SCSI Adapter[6]	Full	32/64-bit	1…12[5]	X
37L6080	Netfinity ServeRAID-4M Ultra160 SCSI Controlle[7, 20]	Full	32/64-bit	1…12	X
37L6889	Netfinity ServeRAID-4H Ultra160 SCSI Controller[8]	Full	32/64-bit	1…12	X
02K3454	PCI Wide Ultra SCSI Adapter	Half	32-bit	1…12	-
09L2123	Advanced SerialRAID/X Adapter	Full	32-bit	1…12[9]	-
	Fibre Storage Controllers[10]				
01K7297	Netfinity Fibre Channel PCI Adapter	Half	32/64-bit	1…12	-
35261RU	Netfinity Fibre Channel RAID Controller Unit	-	-	-	-
01K7296	Netfinity Fibre Channel Failsafe RAID Controller	-	-	-	-
35231RU	Netfinity Fibre Channel Hub	-	-	-	-
00N6881	Netfinity FAStT Host Adapter	Half	32/64-bit	1…12	X
35521RU	Netfinity FAStT500 RAID Controller	-	-	-	-
2109S08	SAN Fibre Channel Switch, 8-Port	-	-	-	-
2109S16	SAN Fibre Channel Switch, 16-Port	-	-	-	-
	Networking[11]				
	Ethernet				
34L1501	Netfinity 10/100 Ethernet PCI Adapter 2	Half	32-bit	1…12	X
08L3341	Netfinity 10/100 Fault Tolerant Adapter	Half	32-bit	1…12	X
09N9901	10/100 EtherLink Server Adapter by 3Com	Half	32-bit	1…12	X
34L0301	Netfinity Gigabit Ethernet SX Adapter	Half	32/64-bit	1…12	X
	Token Ring				
34L0501	Token-Ring 100/16/4 High-Speed PCI Adapter	Half	32-bit	1…12	-
34L0601	Token-Ring 16/4 PCI Adapter 2	Half	32-bit	1…12	X
	Communications				
33L4618	PCI V.90 56 Data/Fax Modem[12]	Half	32-bit	1…12	-
37L14xx	Serial I/O SST 8, 16 and 128 Port Adapters[13]	Half	32-bit	1…12[13]	-
	Systems Management[14]				
03K9309	Netfinity Advanced System Management Interconnect Cable Kit[15]	-	-	-	-
36L9654	Netfinity Advanced System Management Token-Ring Connection[16]	-	-	-	-
02K6545	UltraSlim 56W AC Adapter[17]				
	Host Attach				
9086001	Netfinity ESCON Adapter[18]	Full	32-bit	1…12[19]	-


Full Length Adapter Slots / Power Supply Bays
Slot 1- PCI, Hot-Plug, 32/64-bit, Full Length
Slot 2- PCI, Hot-Plug, 32/64-bit, Full Length
Slot 3- PCI, Hot-Plug, 32/64-bit, Full Length
Slot 4- PCI, Hot-Plug, 32/64-bit, Full Length
Slot 5- PCI, Hot-Plug, 32/64-bit, Full Length
Slot 6- PCI, Hot-Plug, 32-bit, Full Length
Slot 7- PCI, Hot-Plug, 32-bit, Full Length
Slot 8- PCI, Hot-Plug, 32-bit, Full Length
Slot 9- PCI, Hot-Plug, 32-bit, Full Length
Slot 10- PCI, Hot-Plug, 32-bit, Full Length
Slot 11- PCI, Hot-Plug, 32-bit, Full Length
Slot 12- PCI, Hot-Plug, 32-bit, Full Length
Standard on all models 400 W Hot-Swap Power Supply
Standard on all but 8680-1RU 400 W Hot-Swap Power Supply Optional on 8680-1RU (P/N 01K7951)
Optional 400 W Hot-Swap Redundant Power Supply II (P/N 01K7951)

1. PCI Slots 1...5 support 64-bit or 32-bit operations. PCI Slots 6...12 support 32-bit operations.
2. All 12 PCI slots are Hot Plug capable using IBM's Active PCI Technology. For Network Operating System support access URL www.ibm.com/pc/us/compat.
3. Netfinity 7000 M10 includes two onboard Wide Ultra SCSI controllers, one internal connector and one external port with a 0.8 mm Very High Density Connection Interface (VHDCI), which can be used to attach up to 15 SCSI devices with the appropriate SCSI cable.
4. Netfinity ServeRAID-3L Ultra2 SCSI Adapter (P/N 01K7364) provides either one internal or one external (0.8 mmVHDCI) LVDS SCSI channel.
5. A total quantity of eight, in any combination of 01K7364, 37L6086 and 01K7207 is supported.
6. Netfinity ServeRAID-3HB Ultra2 SCSI Adapter (P/N 37L6086) provides one internal and two external (0.8 mm VHDCI) LVDS SCSI channels. The internal channel can be configured for external usage (0.8 mm VHDCI) providing a total of three external LVDS SCSI channels. Includes 32 MB of mirrored battery-backup cache, which helps protect against data loss in write-back cache mode in the event of a power outage or adapter maintenance.
7. Netfinity ServeRAID-4M Ultra160 SCSI Controller is powered by a 100 MHz Intel i960 processor and provides two channels, 64 MB of battery-backed ECC cache and two internal and two external Ultra160 connectors (only two connectors may be utilized). External connectors are 0.8-mm VHDCI.
8. Netfinity ServeRAID-4H Ultra160 SCSI Controller is powered by a 266 MHz PowerPC 750 processor and provides 128 MB of battery-backed ECC cache with two internal and up to four external Ultra160 connectors (only four connectors may be utilized). External connectors are 0.8-mm VHDCI.
9. A maximum quantity of four is supported.
10. See Netfinity Fibre Array Solutions section for additional configuration information.
11. Netfinity 7000 M10 does not include an onboard network controller.
12. Due to homologation variances, modem availability may differ by country.
13. See Appendix E for details on Serial I/O options and configuration limitations. A maximum of four Serial I/O adapters (any combination of P/N 37L1414, 37L1415, 37L1416, 37L1423) may be installed.
14. Netfinity 7000 M10 ships standard with a Netfinity Advanced System Management PCI Adapter. Unlike optional Netfinity Advanced System Management PCI Adapter (P/N 01K7209), a 56-watt AC adapter and interconnect cable are NOT included and must be ordered separately if desired.

15. Required for all Netfinity Servers containing a standard Advanced System Management Processor that are to be interconnected for system management support through a LAN or modem connection (Netfinity 5500 models 8660 1...4xU are not supported). Up to 12 service processors may be interconnected (including standard and optional processors) with an aggregate connection length of no more than 91.4 meters (300 ft.). A customer-supplied Ethernet cable is required for each interconnection.
16. Contains an IBM Turbo 16/4 Token-Ring PCI Card, which installs in the PCMCIA card slot of Netfinity Advanced System Management PCI Adapter and a PC Card to 9-pin D-Shell cable which is routed to a rear chassis cut-out. The Netfinity Advanced System Management PCI Adapter's integrated Ethernet port and Netfinity Advanced System Management Token-Ring Connection cannot be connected or used together. The firmware level of the integrated Netfinity Advanced System Management PCI Adapter must be at level 32A or later. To download the latest firmware, access URL www.ibm.com/pc/us/netfinity. Select "Server Support", "Family", "Model", "Downloadable Files" and finally "Advanced Sytem Management".
17. Although the 7000 M10 integrated Netfinity Advanced System Management PCI Adapter is powered continuously through the redundant power supply subsystem, an even higher level of availability is offered with the addition of UltraSlim 56W AC Adapter by allowing an independent power source or connection to a separate optional UPS.
18. Provides an ESCON MIC and DB9 Serial Port. Cables are not included but are available through S/390 channels. Contact your IBM representative for additional information.
19. A maximum of two 9086001 adapters (installed in non-adjacent slots) are supported in a single Netfinity server.
20. Planned availability of June 30, 2000.

Netfinity 7000 M10 Power, Monitor & Accessories

Part Number	Description
	Power[1]
01K7951	Netfinity 400W Hot-Swap Redundant Power Supply II[2]
01K7952	Netfinity 7000 M10 Dual Cord Power Unit[3]
	Uninterruptible Power Supply (UPS)[4]
94G6674	APC Smart-UPS 1400RMB[5]
94G6676	APC Smart-UPS 3000RMB[5]
37L6861	APC Smart-UPS 5000RMB[6]
	Monitors
65464AN	G54 Color Monitor 15" (348 mm, 13.7" Viewable Image Size), stealth black[7]
65474AN	G74 Color Monitor 17" (403 mm, 15.9 Viewable Image Size), stealth black[7]
6331B2N	E54 Color Monitor 15" (350-mm, 13.8" Viewable Image Size), stealth black[7]
6332J1N	E74 Color Monitor 17" (403-mm, 15.9" Viewable Image Size), stealth black[7]
654841N	G76 Color Monitor 17" (406-mm, 16" Viewable Image Size), stealth black[7]
65494AN	G96 Color Monitor 19" (454 mm, 17.9" Viewable Image Size), stealth black[8]
9513AG1	T55A Flat Panel Color Monitor (381 mm, 15.0" Viewable Image Size), stealth black[9]
9519AG1	T85A Flat Panel Color Monitor (459-mm, 18.1" Viewable Image Size), stealth black[8]

1. Netfinity 7000 M10 systems containing a single power supply (8680-1RU) do not provide power supply redundancy and require optional power supply 01K7951 when configurations contain one or more of the following:
- Netfinity 7000 M10 Memory Expansion Card (P/N 01K8004)
- Three processors
- Six PCI adapters

Netfinity 7000 M10 systems containing two power supplies (standard on all models except 8680-1RU) provide power supply redundancy and only require optional power supply 01K7951 when redundancy is required for configurations containing one or more of the following:
- Netfinity 7000 M10 Memory Expansion Card (P/N 01K8004)
- Three processors
- Six PCI adapters

2. Includes a power cord which is not used. No additional power source is required.
3. Provides power cord redundancy for the Netfinity 7000 M10. A second power source is required. Even though a second UPS may provide a redundant power source, systems management software does not currently take advantage of its power outage alerts.
4. For runtimes and UPS attributes see Appendix C: UPS Runtime Estimate.
5. Height is 3U. See "Rack and NetBAY" for supported IBM racks.
6. Height is 5U. See "Rack and NetBAY" for supported IBM racks.
7. Installation within a rack requires optional Monitor Compartment (P/N 94G7444).
8. Not supported for installation in a 19" rack.
9. Installation within a rack requires optional Netfinity Flat Panel Monitor Rack Mount Kit (P/N 37L6857) and Netfinity Rack Keyboard Tray (P/N 28L4707). A space saver keyboard may coexist within the same 28L4707 keyboard tray.

Part Number	Description
	Conversion Kits
01K8005	Netfinity 7000 M10 Rack-to-Tower Conversion Kit[1]
	Rack and NetBAY[2]
930842P	Netfinity Enterprise Rack
930842X	Netfinity Enterprise Extension Cabinet
9306900	Netfinity Rack
9306200	Netfinity NetBAY22
10L6912	Netfinity NeyBAY3[3]
	Keyboard and Mouse[4]
28L3644	Space Saver II Keyboard[5,7]
01K1260	TrackPoint IV 104-Key Black Keyboard[6,7]
28L3621	Preferred Keyboard (stealth black)[6]
28L3673	Sleek 2-Button Stealth Black Mouse

1. Includes casters, which can also be used with NetBAY3.
2. Netfinity 7000 Mxx rack models are housed in a 19" rack mountable drawer and require one of the racks listed here. See "IBM Netfinity Rack Cabinet and Options" section for IBM rack supported devices.
3. A maximum of three NetBAY3 enclosures may be stacked beneath a supported Netfinity tower server (conversion kit 01K8005 required). See IBM Netfinity NetBAY3 Stackable Enclosure section for supported devices.
4.Netfinity 700 M10 ships without a keyboard or mouse.
5. Installation within a rack requires optional keyboard tray P/N 28L4707 (stows in "ready-to-use" position).
6. Installation within a rack requires optional keyboard tray P/N 28L4707. This keyboard cannot share a keyboard tray with a flat panel display.
7. Advanced TrackPoint IV features are not available on IBM Netfinity systems.

Netfinity 7000 M10 Tape Options

Part Number	Description	Bays Supported	SCSI Interface (bit)	Form Factor	Termination Included	68/50-pin Converter Incl.	Ext. Tape Encl.[1]
01K1282	12/24 GB DDS/3 4-mm Internal Tape Drive	N/A[2]	8	89 mm (3.5") HH or 133 mm (5.25") HH	Y[3]	Y	3510020
01K1319	10/20 GB NS Internal SCSI Tape Drive	N/A[2]	8	89 mm (3.5") SL or 133 mm (5.25") HH	Y[3]	Y	3510020, 3551001
01K1325	20/40 GB 8-mm Internal SCSI Tape Drive	N/A[2]	16	133 mm (5.25") HH	N	N	3510020[4] 3551001
01K1320	20/40 GB DLT Internal SCSI Tape Drive	N/A[2]	8	133 mm (5.25") FH	Y[5]	Y	3503B0X, 3551001
04K0149	35/70 GB DLT Internal SCSI Tape Drive	N/A[2]	16	133 mm (5.25") FH	N	N	3503B0X[4], 3551001
00N7990	40/80 GB DLT Internal SCSI Tape Drive	N/A[2]	16 Ultra2 LVD	133 mm (5.25") FH	N	N	3503B0X[4], 3551001
	Associated Options						
32G3918	SCSI-2 16-bit Active Terminator	-	16	External	Y	N	3510020, 3503B0X
	External Tape Enclosures						
3510020	External Half High SCSI Storage Enclosure[6]	-	8/16	Desktop	N	N	-
3551001	NetMEDIA Storage Expansion Unit EL[7]	-	16	Rack	Y	N	-
10L7113	NetMEDIA Systems Management Adapter[8]	-	16 LVD	-	N	N	3551001
3503BOX	DLT External SCSI Enclosure[9]	-	16	Desktop	N	N	-
	External Tape Libraries[10]						
3502108	DLT Tape Autoloader	-	16	Desktop	Y	-	-
3502x14	DLT Tape Library	-	16	Desktop or Rack	Y	-	-
3570xxx	Magstar MP 3570 Tape Subsystem (models B2x and C2x)	-	Differential	Rack	Y	-	-

1. To determine cable requirements, note the tape drive's SCSI interface, the appropriate SCSI controller from the system configurator section and the desired enclosure, then refer to Appendix D: Cables - Storage Units - Controllers.
2. Netfinity 7000 M10 supports tape drives installed in external enclosures only. See External Tape Enclosure column.
3. Tape drive is capable of self termination.
Provides a black desktop 5.25" half-high (HH) tape enclosure. Connector is configurable as 50-pin Centronix or 68-pin high density. Requires either tape drive self-termination or SCSI-2 16-bit Active Terminator (P/N 32G3918).
4. Requires SCSI-2 16-bit Active Terminator (P/N 32G3918).
5. A 16-bit terminator is included for attachment to an internal cable.
6. Provides a black desktop DLT tape enclosure. External connector is 68-pin high density. Requires SCSI-2 16-bit Active Terminator (P/N 32G3918).
7. Provides a black 3U, LVDS, 19" rack or NetBAY3 mountable tape enclosure. Provides two full high (FH) or four half high (HH) extended length 5.25" bays. External connector is 0.8mm VHDCI. Includes two power supplies and two power cords.
8. Installs in 3551001. Provides repeater function and LVDS interface allowing longer cable lengths and auto-termination when the 3551001 is powered off.
9. Provides a black desktop DLT tape enclosure with a 68-pin high density external connector. Requires termination by the tape drive or by installation of a SCSI-2 16-bit Active Terminator (P/N 32G3918).
10. Tape library attributes and prerequisites are located in Appendix B: Tape Library Attributes.

NOTE: SCSI support for tape drives is provided by system unit onboard (standard) controller (no-RAID function) or PCI Fast Wide Ultra SCSI Adapter P/N 02K3454. Additional tape attributes can be found in Appendix A: Tape Drive Attributes.

Sample Configurations

The following sample configurations are for illustration only and may not be suitable for any specific customer installation. Contact your IBM Business Partner or IBM Marketing Representative for assistance with your specific configuration requirements.

High Availability-Rack

Part Number	Description	Quantity	Usage
8680-7RY	Netfinity 7000 M10 (PIII Xeon 500-1 MB/256 MB/Rack)	1	Power Redundancy standard
28L4734	Netfinity 7000 M10 500 MHz/1 MB Upgrade with Pentium III Xeon Processor	1	Total SMP processors: Two
28L4732	Netfinity 7000 M10 512 MB Advanced Memory Expansion Kit- 4x128	1	Total: 512 MB[1]
01K8053	Netfinity 9.1 GB Wide Ultra SCSI SCA-2 SL HDD	4	-
34L1501	Netfinity 10/100 Ethernet PCI Adapter 2	1	
37L6086	Netfinity ServeRAID-3HB Ultra2 SCSI Adapter	1	RAID Controller
65464AN	G54 Color Monitor 15" (348 mm, 13.7" Viewable Image Size), stealth black	1	-
28L3644	Space Saver II Keyboard	1	Includes TrackPoint
94G6676	APC Smart-UPS 3000RMB	1	-
	External Storage		
3551001	NetMEDIA Storage Expansion Unit EL	1	External Tape Drive Enclosure
00N7990	40/80 GB DLT Internal SCSI Tape Drive	2	Installs in 3551001
35202RU	Netfinity EXP15	1	Provides additional 10 bays
03K9310	Netfinity 2M Ultra2 SCSI Cable	2	EXP15 to ServeRAID-3HB, Tape to Onboard
36L9809	Netfinity EXP 9.1 GB 10K-3 Wide Ultra SCSI Hot-Swap HDD	6	RAID 5 with Hot-Spare in EXP15.
	Rack Options		
9306200	Netfinity NetBAY22	1	Monitor and Keyboard mount on top
94G6670	Blank Filler Panel Kit	1	-

1. Advanced ECC DIMMs not only detect and correct single 4-bit memory errors but detect and correct two 4-bit errors as well. These advanced memory DIMMs significantly improve reliability up to 100 times over current ECC technology. In order to provide this increased reliability for all installed memory, co-existence with other Netfinity 7000 M10 memory is not recommended and has therefore been removed in this sample configuration.

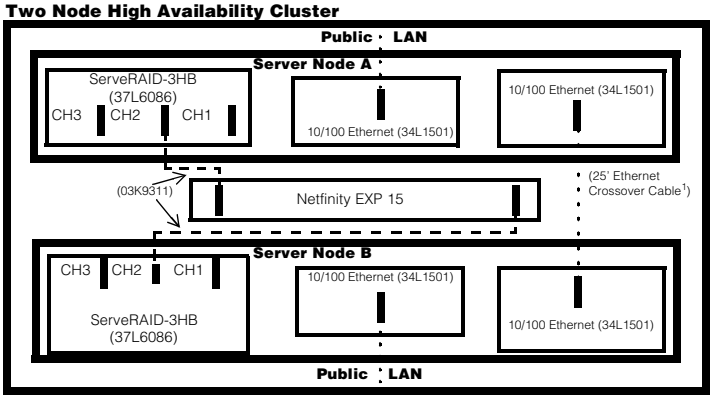
This high availability server is configured to act as the foundation for business critical applications, applications your business cannot afford to be without. The configuration includes enough disk drives to mirror the operating system and provide a RAID 5 data environment, power supply redundancy by the server and EXP15 and a UPS for power even during a blackout. A rack mounted tape drive is included to back-up that all important asset.....data. This server represents the leading edge in high availability.

Notes/Exchange-Stack

Part Number	Description	Quantity	Usage
8680-2SY	Netfinity 7000 M10 (PIII Xeon 550-1 MB/256 MB/Rack)	1	-
33L5108	Netfinity 550 MHz/ 1 MB Upgrade with Pentium III Xeon Processor	3	Total SMP processors: Four
01K8045	Netfinity 7000 M10 512 MB Memory Expansion Kit - 4x128	2	Total: 3GB[1], 8-way interleaved
01K8046	Netfinity 7000 M10 1 GB Memory Expansion Kit - 4x256	2	Total: 3GB[1], 8-way interleaved
01K8004	Netfinity 7000 M10 Memory Expansion Card	1	Enables 8-way intleaving configuration
36L9806	Netfinity 9.1 GB 10K-3 Wide Ultra SCSI Hot-Swap SL HDD	2	NOS Mirroring
34L1501	Netfinity 10/100 Ethernet PCI Adapter 2	2	-
37L6086	Netfinity ServeRAID-3HB Ultra2 SCSI Adapter	1	RAID Controller
65464AN	G54 Color Monitor 15" (348 mm, 13.7" Viewable Image Size), stealth black	1	-
28L3644	Space Saver II Keyboard	1	Includes TrackPoint
01K7951	Netfinity 400W Hot-Swap Redundant Power Supply II	1	Required to preserve power redundancy
94G6676	APC Smart-UPS 3000RMB	1	-
	External Storage		
3551001	NetMEDIA Storage Expansion Unit EL	1	External Tape Drive Enclosure
00N7990	40/80 GB DLT Internal SCSI Tape Drive	2	Installs in 3551001
35202RU	Netfinity EXP15	1	Provides additional 10 bays
03K9310	Netfinity 2M Ultra2 SCSI Cable	2	EXP15 to ServeRAID-3H, Tape to System
36L9810	Netfinity EXP 18.2 GB 10K-3 Wide Ultra SCSI Hot-Swap HDD	10	RAID 5 with Hot-Spare in EXP15
	Stack Options		
01K8005	Netfinity 7000 M10 Rack-to-Tower Conversion Kit	1	Monitor and Keyboard mount on top
10L6912	Netfinity NetBAY3	3	Provides space for EXP15, UPS and Tape

1. Configuration for 8-way interleaving with Netfinity 7000 M10 Memory Expansion Card (P/N 01K8004) requires removal of standard memory.

Two Node High Availability Cluster



1.Customer supplied Ethernet Crossover Cable may vary in length up to a maximum of 25' (7.6 m).

Two Node High Availability Cluster

Part Number	Description	Quantity	Usage
	Server Nodes A & B		
8680-3SY	Netfinity 7000 M10 (PIII Xeon 550-2 MB/256 MB/Rack) (11U)	2	-
33L5109	Netfinity 550 MHz/2 MB Upgrade with Pentium III Xeon Processor	6	Total SMP processors: 4 each
01K8044	Netfinity 7000 M10 256 MB Memory Expansion Kit	2	-
01K8046	Netfinity 7000 M10 512 MB Memory Expansion Kit	4	Total: 1.5 GB, 8-way interleave capable
01K8004	Netfinity 7000 M10 Memory Expansion Card	2	Optimizes 8-way interleaving
01K7364	Netfinity ServeRAID-3L Ultra2 SCSI Adapter	2	1 per node for NOS HDDs
01K8053	Netfinity 9.1 GB Wide Ultra SCSI SCA-2 SL HDD	4	NOS on Mirrored HDDs
34L1501	Netfinity 10/100 Ethernet PCI Adapter 2[1]	4	1 Private Interconnect, 1 public
37L6086	Netfinity ServeRAID-3HB Ultra2 SCSI Adapter[2]	2	Three channels for EXP15s
01K7951	Netfinity 400W Hot-Swap Redundant Power Supply II	2	Required to preserve power redundancy
94G6676	APC Smart-UPS 3000RMB (3U)	2	Provides redundant power sources
	External Storage		
3551001	NetMEDIA Storage Expansion Unit EL (3U)	1	External Tape Drive Enclosure
03K9310	Netfinity 2M Ultra2 SCSI Cable[3]	1	Attaches 3551001 to onboard SCSI
00N7990	40/80 GB DLT Internal SCSI Tape Drive	2	Installs in 3551001
35202RU	Netfinity EXP15 (3U)[2]	1	-
36L9810	Netfinity EXP 18.2 GB 10K-3 Wide Ultra SCSI Hot-Swap HDD	10	RAID 5 Shared Storage
03K9311	Netfinity 4.2 M Ultra2 SCSI Cable[2, 3]	2	Attach EXP15 to ServeRAID-3HBs
	Shared (or single occurrence) Resources		
9513AG1	T55A Flat Panel Color Monitor (381 mm, 15.0" Viewable Image Size), stealth black	1	Mounts in keyboard tray
28L3644	Space Saver II Keyboard	1	Includes TrackPoint
	Industry Standard 19" Rack, EIA-310D, Min. depth of 29.23"		
9306900	9306-900 Netfinity Rack	1	-
37L6857	Netfinity Flat Panel Monitor Rack-Mount Kit (3U)	1	Mounts in keyboard tray
28L4707	Netfinity Rack Keyboard Tray	1	-
28L0542	Netfinity Console Server Selector Switch (4-port)	1	-
94G6667	Power Cable-Type A14[3]	5	-
94G7447	12 ft Console Cable Set	2	-
94G6669	Side Panel Kit	1	-
94G6670	Blank Filler Panel Kit	1	-

1. Requires customer supplied Ethernet Crossover Cable which may vary in length up to a maximum of 25' (7.6 m).
2. By replicating these items, up to a total quantity of four ServeRAID-3HB Adapters (plus options) and eleven EXP15s can provide over 2 Terabytes of storage. Additional power and rack space will be required.
3. Cable length requirements are dependent on component placement within the rack or rack suite. To determine specific configuration requirements use the Netfinity Rack Configurator which is downloadable from Web site www.ibm.com/pc/us/netfinity/tech_library.html "Configuration Tools".

Clustering is a group of interconnected computers used as a single, unified computing resource. Clustering Netfinity servers, like the IBM Netfinity 7000 M10, provides a high availability solution to keep you in touch with the key applications you need to run your business.

This sample configuration consists of paired IBM Netfinity 7000 M10 cluster nodes equipped with four-way SMP capability and redundant power supplies. Microsoft Cluster Service (MSCS) has been validated IBM Netfinity 7000 M10 servers, using the Netfinity ServeRAID-3HB with the EXP15 Storage Expansion Unit. MSCS allows two configured servers, referred to as nodes, to be connected together to form a cluster. Providing system redundancy means that a complete server can fail and client access to server resources is largely unaffected. MSCS extends this theme by also allowing for software failures at an application level as well as an operating system level. If the operating system fails, all applications and services can be restarted on another server, and if just one application fails, it can be managed by MSCS individually. An additional independent network connection is used to perform monitoring within the cluster. One or more disk subsystems are attached to both nodes. In the above example, a Netfinity EXP15 was selected and the Netfinity ServeRAID-3HB Ultra2 SCSI Adapters provide the I/O control. Netfinity ServeRAID-3HB handles the "SCSI heartbeat" connection without the need for a dedicated SCSI connection and logically attaches the quorum disk, which allows arbitration when a failure occurs. Additional information on IBM Netfinity and IBM PC Server Clustering Solutions may be found on the World Wide Web by accessing URL www.ibm.com/pc/us/netfinity/clustering.html.

IBM Netfinity 7100 Configurator

Part Number	Processor Speed (MHz)[2]	Number of Processors (Std./Max)	L2 ECC Cache (KB)	Memory (Std./Max) (R = RDIMM)	Form Factor	Power Supply Quantity (Std./Max)	Hot-Swap (Power, Slots, HDD, Fans)	Redundancy (Optional, Standard)	Adv. System Management Processor	Onboard Ethernet (Mbps)	SCSI Controller (Dual, Ultra, RAID)	Removable Media Bays (Total/Avail)	Internal Hard Disk Drive (Std./Max)	CD-ROM (IDE)	Bays: (Total/Avail)	Slots: (Total/Avail)
8666-11Y	550	1/4	512	256MB(R)/16GB[3]	Tower	2/4	P, H,F	S-Fans S-Power	Y	10/100	D,U2	4/2	0/364GB	40X- 17X[4]	14/12	6/6
8666-1RY[1]	550	1/4	512	256MB(R)/16GB[3]	Rack(8U)	2/4	P, H,F	S-Fans S-Power	Y	10/100	D,U2	4/2	0/364GB	40X- 17X[4]	14/12	6/6
8666-21Y	550	1/4	1024	256MB(R)/16GB[3]	Tower	2/4	P, H,F	S-Fans S-Power	Y	10/100	D,U2	4/2	0/364GB	40X- 17X[4]	14/12	6/6
8666-2RY[1]	550	1/4	1024	256MB(R)/16GB[3]	Rack(8U)	2/4	P, H,F	S-Fans S-Power	Y	10/100	D,U2	4/2	0/364GB	40X- 17X[4]	14/12	6/6

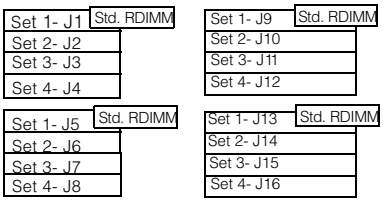
1. Housed in a 19" Rack mountable drawer and ships standard without a keyboard or mouse. See "Rack and NetBAY" under "Netfinity 7100 Power, Monitor & Accessories" for supported IBM racks.
2. Intel Pentium III processor with advanced transfer (full speed) L2 cache and 100 MHz access to memory and I/O buses.
3. Maximum capacity is dependent on future availability of Netfinity 1GB 100MHz ECC SDRAM RDIMM (P/N 33L3119).
4. Variable read rate. Actual playback speed will vary and is often less than the maximum possible.

Netfinity 7100 Processor Upgrades

Part Number	Processor Upgrades with Full Speed Cache	SMP Support[1]	Processor Speed Upgrade[2]
33L5056	Netfinity 550 MHz/512 KB Upgrade II with Pentium III Xeon Processor	1xY	-
33L5057	Netfinity 550 MHz/1 MB Upgrade II with Pentium III Xeon Processor	2xY	All 1xY

1. Three additional processors may be installed, providing a maximum of four. All processors must be identical in type, speed, and cache size.
2. Requires removal of the standard processor. A maximum of four processors may be installed. All processors must be identical in type, speed and cache size. Upgrades may require a BIOS update. To obtain the latest Flash BIOS, access www.ibm.com/pc/support and enter machine "Type-Model" in Quick Path. Select "Downloadable files" and then "BIOS".

Netfinity 7100 Memory



All RDIMMs installed in each set must be the same size, but all the sets do not have to contain RDIMMs of the same size. Install RDIMM sets in numerical sequence from 1 to 4.

Total Memory[1]	Quantity of RDIMMs Added[2]				
	64 MB (33L3067)	128 MB (33L3113)	256 MB (33L3115)	512 MB (33L3117)	1 GB (33L3119)
256 MB	4 x 64 RDIMMs Standard	-	-	-	-
512 MB	4	-	-	-	-
768 MB	-	4	-	-	-
1.0 GB	4	4	-	-	-
1.2 GB	-	-	4	-	-
1.7 GB	-	4	4	-	-
2.0 GB	4	4	4	-	-
2.7 GB	-	4	-	4	-
3.0 Gb	4	4	-	4	-
3.2 GB	-	-	4	4	-
3.7 GB	-	4	4	4	-
4 GB[3]	-	8	4	4	-
5 GB[3]	-	-	12	4	-
6 GB[3]	-	-	8	8	-
7 GB[3]	-	-	4	12	-
8 GB[3]	-	-	-	16	-
9 GB[3]	-	-	4	8	4
10 GB[3]	-	-	-	12	4
12 GB[3]	-	-	-	8	8
14 GB[3]	-	-	-	4	12
16 GB[3] (max)	-	-	-	-	16

This table does not represent all possible memory configurations. Memory modules may vary in price per MB. Selection of smaller RDIMMs may provide a more cost-effective alternative to using larger RDIMMs.
1. Network Operating Systems may limit the maximum amount of addressable memory. See operating system specifications for further information.
2. To obtain the quantity of memory identified in the "Total Memory" column, select the appropriate row and order the quantity of RDIMMs identified in all columns for that row. Example: For 1.0 GB, order 4 x 33L3067 and 4 x 33L3113.
3. Requires removal of standard memory DIMMs.

Part Number	Memory Description[1]	Upgrade 10K2169 Compatible[2]
33L3067	Netfinity 64 MB, 100 MHz ECC SDRAM RDIMM	-
33L3113	Netfinity 128 MB, 100 MHz ECC SDRAM RDIMM	X
33L3115	Netfinity 256 MB, 100 MHz ECC SDRAM RDIMM	X
33L3117	Netfinity 512 MB, 100 MHz ECC SDRAM RDIMM	X
33L3119	Netfinity 1 GB 100 MHz ECC SDRAM RDIMM[3]	X
10K2169	Netfinity Active PCI/Chipkill Upgrade Kit[3, 4]	X

1. Due to four-way interleaving all RDIMMs installed in each set must be the same size, but all the sets do not have to contain RDIMMs of the same size. Memory must be installed in sets of four identical RDIMMs (example: quantity 4 of 33L3113). Install RDIMM sets in numerical sequence from Set 1 to Set 4.
2. Memory designated by an "X" may be used with NetfinityActive PCI/Chipkill Upgrade Kit (P/N 10K2169), with planned availability of second quarter 2000.
3. Planned availability of second quarter 2000.
4. Netfinity Active PCI/Chipkill Upgrade Kit (P/N 10K2169) provides an upgrade to hot-swap PCI slots and "Chipkill" ECC memory.

Netfinity 7100 Hard Disk Drive (HDD) Storage

Total Int. Storage[1]	7200RPM Hard Disk Drives (HDDs)			10,000RPM Hard Disk Drives (HDDs)		
	9.1 GB (P/N 36L9744 or 37L7201)[2]	18.2 GB (P/N 36L9745 or 37L7202)[2]	36.4 GB (P/N 36L9746 or 37L7203)[2]	9.1 GB (P/N 36L9748 or 37L7204)[2]	18.2 GB (P/N 36L9749 or 37L7205)[2]	36.4 GB (P/N 36L9750 or 37L7206)[2]
0 GB	Standard on Base Models			Standard on Base Models		
9.1 GB	1	-	-	1	-	-
18.2 GB	2	1	-	2	1	-
27.3 GB	3	-	-	3	-	-
36.4 GB	4	2	1	4	2	1
45.5 GB	5	-	-	5	-	-
54.6 GB	6	3	-	6	3	-
63.7GB	7	-	-	7	-	-
72.8 GB	8	4	2	8	4	2
81.9GB	9	-	-	9	-	-
91 GB	10	5	-	10	5	-
109.2 GB	-	6	3	-	6	3
127.4GB	-	7	-	-	7	-
145.6GB	-	8	4	-	8	4
163.8GB	-	9	-	-	9	-
182GB	-	10	5	-	10	5
218.4GB	-	-	6	-	-	6
254.8GB	-	-	7	-	-	7
291.2 GB	-	-	8[3]	-	-	8[3]
327.6 GB	-	-	9[3]	-	-	9[3]
364 GB (max)	-	-	10[3]	-	-	10[3]

This table does not represent all possible hard drive configurations.
1. Select a total storage row then select the quantity of HDDs from a column corresponding to the hard disk drive of choice. Total Internal Storage listed is within ± 0.2 GB unless otherwise noted.
2. Ultra160 HDDs are limited to a maximum of Ultra2 bus speeds.
3. Part numbers 36L9746 and 36L9750 are half-high devices and therefore cannot be utilized for configurations requiring greater than a quantity of seven.

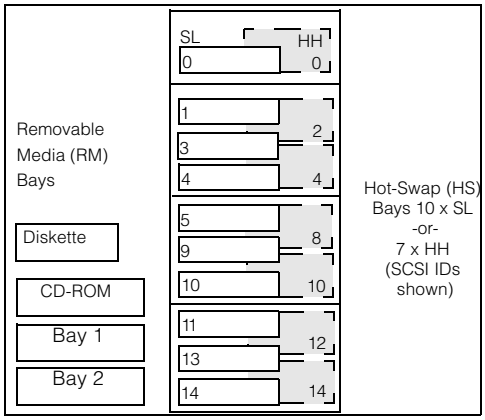
Bay	Form Factor	Height	Front Access	Usage
-	89 mm (3.5")	SL	Yes	Diskette
-	133 mm (5.25")	HH	Yes	IDE CD-ROM
RM 1	133 mm (5.25")	HH[1]	Yes	Open
RM 2	133 mm (5.25")	HH[1]	Yes	Open
1..10 or 1...7	HS	SL or HH[2]	Yes	Open
NB3[3]	19" Rack	3U	Yes	Open

1. Two half-high (HH) bays can be combined to support a single full-high (FH) device
2. The top bay is HH; all others are configured in groups of 3 SL bays. When a HH drive is installed in one of these groups, only another HH or a single SL drive can be installed in the same group. For clarity, the SCSI IDs are identified.
3. Tower configured systems support installation of up to 3 NetBAY3s. See IBM Netfinity NetBAY3 Stackable Enclosure section for supported devices.

Part Number	Description	RPM	Height	Bays Supported	Max. Qty.
	Ultra2 Hard Disk Drives (HDD)				
36L9744	Netfinity 9.1 GB Wide Ultra2 SCSI Hot-Swap SL HDD	7200	SL	See diagram	10
36L9745	Netfinity 18.2 GB Wide Ultra2 SCSI Hot-Swap SL HDD	7200	SL	See diagram	10
36L9746	Netfinity 36.4 GB Wide Ultra2 SCSI Hot-Swap HDD	7200	HH[2]	See diagram	7
36L9748	Netfinity 9.1 GB 10K-3 Wide Ultra2 SCSI Hot-Swap SL HDD	10,000	SL	See diagram	10
36L9749	Netfinity 18.2 GB 10K-3 Wide Ultra2 SCSI Hot-Swap SL HDD	10,000	SL	See diagram	10
36L9750	Netfinity 36.4 GB 10K-3 Wide Ultra2 SCSI Hot-Swap HDD	10,000	HH[2]	See diagram	7
	Ultra160 Hard Disk Drives (HDD)[1]				
37L7201	Netfinity 9.1 GB Ultra160 SCSI Hot-Swap SL HDD	7200	SL	See diagram	10
37L7202	Netfinity 18.2 GB Ultra160 SCSI Hot-Swap SL HDD	7200	SL	See diagram	10
37L7203	Netfinity 36.4 GB Ultra160 SCSI Hot-Swap SL HDD[7]	7200	SL	See diagram	10
37L7204	Netfinity 9.1 GB 10K-4 Ultra160 SCSI Hot-Swap SL HDD[8]	10,000	SL	See diagram	10
37L7205	Netfinity 18.2 GB 10K-4 Ultra160 SCSI Hot-Swap SL HDD[8]	10,000	SL	See diagram	10
37L7206	Netfinity 36.4 GB 10K-4 Ultra160 SCSI Hot-Swap SL HDD[8]	10,000	SL	See diagram	10

	External Storage Expansion Units[3]	Form Factor
35301RU	Netfinity EXP200 Storage Expansion Unit[4]	Rack (3U)
37L5857	Netfiinity EXP200 Rack-to-Tower Conversion Kit	-
37L0075	Netfinity EXP200 350 W Redundant Power Supply	-
35311RU	Netfinity EXP300 Storage Expansion Unit[5, 8]	Rack (3U)
09N7296	Netfinity EXP300 Rack-to-Tower Conversion Kit[8]	-
35601RU	Netfinity FAStT EXP500 Storage Expansion Unit[6]	Rack (3U)

1. Ultra160 HDDs are limited to a maximum of Ultra2 bus speeds.
2. Two slim-line (SL) bays can be combined to support a single half-high (HH) device. See Bay diagram for identification of which bays can be combined. A mixture of HH, SL, 10,000 rpm and 7,200 rpm drives is supported.
3. Not supported by the onboard external SCSI port. Select an optional SCSI controller then refer to Appendix D: Cables-Storage Units-Controllers to confirm the controller supports the desired External Storage Expansion Unit and to select a supported cable. For HDD or other expansion unit options, see the specific expansion unit section.
4. Netfinity EXP200 includes a single 2 M Ultra2 SCSI cable and a single hot-swap 350 W power supply and power cord. Optional hot-swap Netfinity EXP200 350 W Redundant Power Supply (P/N 37L0075) includes an additional power cord. To convert an EXP200 to a tower form factor, Netfinity EXP200 Rack-to-Tower Conversion Kit (P/N 37L5857) is required.
5. Netfinity EXP300 includes a single 2 M Ultra2 SCSI cable and dual hot-swap 500 W power supplies, each with its own power cord. To convert an EXP300 to a tower form factor, Netfinity EXP300 Rack-to-Tower Conversion Kit (P/N 09N7296) is required.
6. Netfinity FAStT EXP500 Storage Expansion Unit (P/N 35601RU) includes dual hot-swap 350 W power supplies, each with its own power cord.
7. Planned availabilty of June 1, 2000.
8. Planned availability of June 30, 2000.



Netfinity NetBAY3 (NB3)
(Optional on Tower Configurations)

1. The top bay is HH; all others are configured in groups of three SL bays. When a HH drive is installed in one of these groups, only another HH or a single SL drive can be installed in the same group. For clarity, the SCSI IDs are identified.

Internal SCSI Cabling

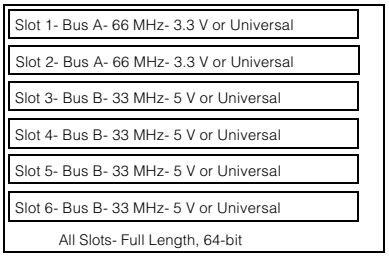
The Netfinity 7100 contains a DASD backplane supporting ten hot-swap, SCA-2 compliant drive bays. The backplane is connected to Channel B of the integrated dual-channel, Wide Ultra2 SCSI controller through a 16-bit LVD SCSI cable. Channel A only supports external SCSI attachment and is cabled directly to the external 0.8mm VHDCI SCSI connector. To support devices in the internal 133/89-mm (5.25/3.5-inch) half-high bays, a two-drop, 16-bit LVD SCSI cable with integrated terminator is included with the server. This cable can be used to connect to an optional SCSI adapter or, in the case of RAID configurations where the backplane cable is attached to an optional RAID adapter, it can be connected to the Channel B connector.

Netfinity 7100 I/O Options

Part Number	Description	Adapter Length	PCI Support	Slots Supported[1]	Hot-Plug[2]	PCI Voltage Key	MHz
	Storage Controllers[3]						
01K7364	Netfinity ServeRAID-3L Ultra2 SCSI Adapter[4]	Full	32-bit	3...6[9]	X[2]	5	33
37L6086	Netfinity ServeRAID-3HB Ultra2 SCSI Adapter[5]	Full	32/64-bit	3...6[9]	X[2]	5	33
37L6091	Netfinity ServeRAID-4L Ultra160 SCSI Controller[6, 20]	Full	32/64-bit	1…6	X	Universal	33
37L6080	Netfinity ServeRAID-4M Ultra160 SCSI Controller[7, 20]	Full	32/64-bit	1…6	X	Universal	33
37L6889	Netfinity ServeRAID-4H Ultra160 SCSI Controller[8]	Full	32/64-bit	1…6	X	Universal	33
02K3454	PCI Fast/Wide Ultra SCSI Adapter	Half	32-bit	3...6	-	5	33
	Fiber Storage Controllers and Options[10]						
01K7297	Netfinity Fibre Channel PCI Adapter	Half	32/64-bit	1…6	-	Universal	33
35261RU	Netfinity Fibre Channel RAID Controller Unit	-	-	-	-	-	-
01K7296	Netfinity Fibre Channel Failsafe RAID Controller	-	-	-	-	-	-
35231RU	Netfinity Fibre Channel Hub	-	-	-	-	-	-
00N6881	Netfinity FAStT Host Adapter	Half	32/64-bit	1…6	X[2]	Universal	66
35521RU	Netfinity FAStT500 RAID Controller	-	-	-	-	-	-
2109S08	SAN Fibre Channel Switch, 8-Port	-	-	-	-	-	-
2109S16	SAN Fibre Channel Switch, 16-Port	-	-	-	-	-	-
	Networking[11]						
	Ethernet						
34L1501	Netfinity 10/100 Ethernet PCI Adapter 2	Half	32-bit	1…6	X[2]	Universal	33
08L3341	Netfinity 10/100 Fault Tolerant Adapter	Half	32-bit	3...6	X[2]	5	33
34L0301	Netfinity Gigabit Ethernet SX Adapter	Half	32/64-bit	1…6	X[2]	Universal	33
	Token Ring						
34L0501	Token-Ring 100/16/4 High-Speed PCI Adapter	Half	32-bit	1…6	-	Universal	33
34L0701	Token-Ring 16/4 PCI Adapter 2 with Wake on LAN[12]	Half	32-bit	1…6	X[2]	Universal	33
	Communications[13]						
33L4618	PCI V90 56 Data/Fax Modem[14]	Half	32-bit	3...6	-	5	33
	Systems Management[15]						
01K7209	Netfinity Advanced System Management PCI Adapter[16]	Full	32-bit	3…6[17]	-	5	33
03K9309	Netfinity Advanced System Management Interconnect Cable Kit[18]	-	-	-	-	-	-
36L9654	Netfinity Advanced System Management Token-RIng Connection[19]	-	-	-	-	-	-
	Other						
10K2169	Netfinity Active PCI/Chipkill Upgrade Kit[2]	-	-	3...6	X	-	-

1.The 5 V slots support Universal or 5 V adapters. The 3.3 V slots support 3.3 V adapters. A Universal Keyed 66 MHz adapter plugged into a 33 MHz slot will operate at 33 MHz. A Universal Keyed 33 MHz adapter plugged into a 66 MHz slot limits other adapters installed on the same bus to 33 MHz.
2. Netfinity 7100 does not ship with hot-plug PCI slots. The addition of optional Netfinity Active PCI/Chipkill Upgrade Kit (P/N 10K2169) provides slots 3-6 with hot-plug capability using IBM's Active PCI technology. For Network Operating System support access URL www.ibm.com/pc/us/compat
3.Netfinity 7100 includes a dual-port, dual-channel, 64-bit Wide Ultra2 SCSI controller with one internal connector and one external port with a 0.8-mm Very High Density Connection Interface (VHDCI).
4. Netfinity ServeRAID-3L Ultra2 SCSI Adapter (P/N 01K7364) provides either one internal or one external (0.8-mm VHDCI) LVDS SCSI channel.
5. Netfinity ServeRAID-3HB Ultra2 SCSI Adapter (P/N 37L6086) provides one internal and 2 external (0.8-mm VHDCI) LVDS SCSI channels. The internal channel can be configured for external usage (0.8-mm VHDCI connector) providing a total of 3 external LVDS SCSI channels. Includes 32MB of mirrored battery-backup cache which helps protect against data loss in write-back cache mode in the event of a power outage or adapter maintenance.
6. Netfinity ServeRAID-4L Ultra160 SCSI Controller is powered by a 100 MHz Intel i960 processor and provides a single channel, 16 MB of ECC cache and one internal or one external Ultra160 connection. External connectors are 0.8-mm VHDCI.
7. Netfinity ServeRAID-4M Ultra160 SCSI Controller is powered by a 100 MHz Intel i960 processor and provides two channels, 64 MB of battery-backed ECC cache and two internal and two external Ultra160 connectors (only two connectors may be utilized). External connectors are 0.8-mm VHDCI.
8. Netfinity ServeRAID-4H Ultra160 SCSI Controller is powered by a 266 MHz PowerPC 750 processor and provides 128 MB of battery-backed ECC cache with two internal and up to four external Ultra160 connectors (only four connectors may be utilized). External connectors are 0.8-mm VHDCI.
9. A total quantity of eight, in any combination of 01K7364, 37L6086, and 01K7207 is supported.
10. See Netfinity Fibre Array Solutions section for additional configuration information.
11. Netfinity 7100 includes a full-duplex, 10/100 Mbps Ethernet PCI Controller.
12. The Wake on LAN function of this option is not supported by Netfinity servers.
13. Netfinity 7100 includes two USB ports, two high-speed serial/asynchronous ports, (NS16550A compatible), and one high-speed (up to 2 MB/sec. data transfer speed) bi-directional parallel port supporting devices using ECP/EPP/SSP protocols adhering to the IEEE 1284 standard.
14. Due to homologation variances, modem availability may differ by country.

15. The Netfinity Advanced Systems Management Processor and Interconnect Bus integrated into Netfinity 7100 works with Netfinity Director to provide significant system management function. When used with optional Netfinity Advanced System Management PCI Adapter (P/N 01K7209) and Netfinity Advanced System Management Interconnect Cable Kit (P/N 03K9309) additional management and control of up to 12 service processors from a remote console through a single modem or LAN connection is possible.
16. Includes PCI adapter, Netfinity Advanced System Management Interconnect Cable Kit components and 56-watt AC adapter which requires a separate power source. Provides an integrated 10/100 Ethernet port and PCMCIA slot to support optional Netfinity Advanced System Management Token-Ring Connection (P/N 36L9654).
17. A maximum quantity of one is supported.
18. Required for all Netfinity servers containing a standard Advanced System Management Processor that are to be interconnected for system management support through a LAN or modem connection (Netfinity 5500 models 8660-1...4xU are not supported). Up to 12 service processors may be interconnected (including standard and optional processors) with an aggregate connection length of no more than 91.4 meters (300 ft.). A customer-supplied Ethernet cable is required for each interconnection.
19. Contains an IBM Turbo 16/4 Token-Ring PCI Card, which installs in the PCMCIA card slot of Netfinity Advanced System Management PCI Adapter), and a PC Card to 9-pin D-Shell cable which is routed to a rear chassis cut-out. The Netfinity Advanced System Management PCI Adapter's integrated Ethernet port and Netfinity Advanced System Management Token-Ring Connection cannot be connected or used together. To download the latest firmware access URL www.pc.ibm.com/us/netfinity. Select "Server Support", "Family", "Model", "Downloadable files", and finally "Advanced Systems Management".
20. Planned availability of June 30, 2000.


Slot 1- Bus A- 66 MHz- 3.3 V or Universal
Slot 2- Bus A- 66 MHz- 3.3 V or Universal
Slot 3- Bus B- 33 MHz- 5 V or Universal
Slot 4- Bus B- 33 MHz- 5 V or Universal
Slot 5- Bus B- 33 MHz- 5 V or Universal
Slot 6- Bus B- 33 MHz- 5 V or Universal
All Slots- Full Length, 64-bit

Netfinity 7100 Power, Monitor & Accessories

Part Number	Description
	Power[1]
33L3760	Netfinity 250 W Hot-Swap Redundant Power Supply
	Uninterruptable Power Supply (UPS)[2]
94G3135	APC Smart-UPS 1000
94G3136	APC Smart-UPS 1400
94G6674	APC Smart-UPS 1400RMB[3]
94G6676	APC Smart-UPS 3000RMB[3]
37L6861	APC Smart-UPS 5000RMB[4]
	Monitors[5]
6331B2N	E54 Color Monitor 15" (350-mm, 13.8" Viewable Image Size), stealth black[6]
6332J1N	E74 Color Monitor 17" (403-mm, 15.9" Viewable Image Size), stealth black[6]
654841N	G76 Color Monitor 17" (406-mm, 16" Viewable Image Size), stealth black[6]
65494AN	G96 Color Monitor 19" (454-mm, 17.9" Viewable Image Size), stealth black[8]
9513AG1	T55A Flat Panel Color Monitor (381-mm, 15.0" Viewable Image Size), stealth black[7]
9519AG1	T85A Flat Panel Color Monitor (459-mm, 18.1" Viewable Image Size), stealth black[8]

Part Number	Description
	Conversion Kits
37L6860	Netfinity 8Ux24D Rack-to-Tower Kit[1]
37L6859	Netfinity 8Ux24D Tower-to-Rack Kit
	Rack and NetBAY[2]
930842P	Netfinity Enterprise Rack
930842X	Netfinity Enterprise Expansion Cabinet
9306900	Netfinity Rack
9306200	Netfinity NetBAY22
10L6912	Netfinity NetBAY3[3]
10L6913	Netfinity Caster Set
	Keyboard and Mouse[4]
28L3644	Space Saver II Keyboard[5, 7]
01K1260	TrackPoint IV 104-Key Black Keyboard[6,7]
28L3621	Preferred Keyboard (stealth black)[6]
28L3673	Sleek 2-Button Stealth Black Mouse

1. Netfinity 7100 includes two 250W hot-swap redundant power supplies, with the ability to accept up to two additional Netfinity 250 W Hot-Swap Redundant Power Supplies (P/N 33L3760). Each power supply includes its own 9-foot power cord for attachment to a low voltage UPS, PDU or wall outlet. To assist in determining when an additional power supply is required to preserve redundancy, a "Non-Redundant LED" is a standard feature of the Netfinity 7100. Predicting whether or not a particular configuration will require an additional power supply for redundancy is very complex. However, once the system is installed, the "Non-Redundant LED" will indicate when an additional power supply is required. The following sample configuration is provided as a reference.

Number of Power Supplies	System Configuration Supported
Typical Non-Redundant Configuration	
	2 x Processors
2	3 x PCI Adapters
	4 x Half-High or 5 Slim-Line HDDs
	8 x 512 MB RDIMMs
	No Redundancy
Typical Redundant Configuration	
	4 x Processors
3[9]	6 x PCI Adapters
	7 x Half-High or 10 Slim-Line HDDs
	16 x 512 MB RDIMMs
4	**Full Configuration with Redundancy**

2. For runtimes and UPS attributes see Appendix C: UPS Runtime Estimate
3. Height is 3U. See "Rack and NetBAY" for supported IBM racks.
4. Height is 5U. See "Rack and NetBAY" for supported IBM racks.
5. Netfinity 7100 uses an SVGA controller (S3 Trio 3D chipset) with 4 MB of video memory.
6. Installation within a rack requires optional Monitor Compartment (P/N 94G7444).
7. Installation within a rack requires optional Netfinity Flat Panel Monitor Rack Mount Kit (P/N 37L6857) and Netfinity Rack Keyboard Tray (P/N 28L4707). A space saver keyboard may coexist within the same 28L4707 keyboard tray.
8. Not supported for installation in a 19" rack.
9. The addition of a DLT tape drive may require a fourth power supply to preserve redundancy.

1. Includes one Netfinity NetBAY3 with casters.
2. Netfinity 7100 rack models are housed in a 19" rack mountable drawer and require one of the racks listed here. Tower models require Netfinity 8Ux24D Tower-to-Rack Kit (P/N 37L6859) for installation in a rack.
3. Netfinity 7100 tower models require Netfinity 8Ux24D Rack-to-Tower Kit(P/N 37L6860) for use with a NetBAY3. A maximum of three NetBAY3 enclosures, including the one which ships with the conversion kit, may be stacked beneath a supported Netfinity tower server. Optional NetBAY3s must be shipped separately and not while attached to the base configuration. See IBM Netfinity NetBAY3 Stackable Enclosure section for supported devices.
4. Tower models includes both a mouse and keyboard. Rack models include neither.
5. Installation within a rack requires optional keyboard tray P/N 28L4707 (stows in "ready-to-use" position).
6. Installation within a rack requires optional keyboard tray P/N 28L4707. This keyboard cannot share a keyboard tray with a flat panel display.
7. Advanced TrackPoint IV features are not available on IBM Netfinity systems.

Netfinity 7100 Tape Options

Part Number	Tape Drives	Bays Supported	SCSI Interface (bit)	Form Factor	Termination Included	68/50-pin Converter Incl.	Ext. Tape Enclosures
00N7991	20/40 GB DDS/4 4-mm Internal Tape Drive	1, 2	16 Ultra2 LVD	89 mm (3.5") HH or 133 mm (5.25")HH	Y[1]	N	3510020, 3551001
01K1325	20/40 GB 8-mm Internal SCSI Tape Drive	1, 2	16	133 mm (5.25") HH	N[2]	N	3510020[4], 3551001
00N7990	40/80 GB DLT Internal SCSI Tape Drive	1/2	16 Ultra2 LVD	133-mm (5.25") FH	N[1]	N	3503BOX[4], 3551001
Associated Options							
32G3918	SCSI-2 16-bit Active Terminator	-	16	Ext.	Y	N	3510020, 3503BOX
Tape Autoloaders							
3502108	DLT Tape Autoloader	N/A	16	Desktop	Y	-	-
External Tape Libraries[3]							
3502x14	DLT Tape Library	-	16	Desktop or Rack	Y	-	-

1. Tape drive is capable of self termination.
2. Netfinity 7100 includes a terminated, 2-drop, 16-bit, LVD SCSI cable for attachment from the onboard SCSI controller or supported adapter to devices in the removable media bays.
3. Tape library attributes and prerequisites are located in Appendix B: Tape Library Attributes.
4. Requires SCSI-2 16-bit Active Terminator (P/N 32G3918).

NOTE: SCSI support for tape drives is provided by system unit onboard or PCI Fast Wide Ultra SCSI Adapter P/N 02K3454.

For a complete list of all IBM and non-IBM option compatibility with Network Operating Systems and IBM Netfinity Servers, access the ServerProven™ compatibility pages on the Web at URL www.ibm.com/pc/us/compat.

Netfinity 7100 Sample Configurations

Note: The following sample configurations are for illustration only and may not be suitable for any specific customer installation. Contact your IBM Business Partner or IBM Marketing Representative for assistance with your specific configuration requirements.

High Availability Application Server

Part Number	Description	Quantity	Usage
8666-21Y	Netfinity 7100 550/1 MB Xeon, 256 MB(R) ECC, Open, 40X, PCI	1	-
33L3067	Netfinity 64 MB, 100 MHz ECC SDRAM RDIMM	4	-
33L3113	Netfinity 128 MB, 100 MHz ECC SDRAM RDIMM	4	-
33L3115	Netfinity 256 MB, 100 MHz ECC SDRAM RDIMM	4	2 GB Total System Memory
33L5057	Netfinity 550 MHz/1 MB Upgrade II with Pentium III Xeon Processor	2	Total of 3 SMP processors
36L9744	Netfinity 9.1 GB Wide Ultra2 SCSI Hot-Swap SL HDD	2	9.1 GB mirrored for NOS
36L9745	Netfinity 18.2 GB Wide Ultra2 SCSI Hot-Swap SL HDD	6	72 GB RAID 5 with hot-spare
00N7900	40/80 GB DLT Internal SCSI Tape Drive	1	-
37L6086	Netfinity ServeRAID-3HB Ultra2 SCSI Adapter	1	RAID 1 for NOS, RAID 5 for data
33L3760	Netfinity 250 W Hot-Swap Redundant Power Supply	1	Full power redundancy
654841N	G76 UV-NH Color Monitor 17" (406 mm, 16" Viewable Image Size), stealth black	1	
94G3136	APC Smart-UPS 1400	1	UPS

This tower server is configured to act as the foundation for business critical applications, applications your business cannot afford to be without. Configured with enough disk drives to mirror the operating system and provide a standard RAID 5 environment for data, optional hot-swap redundant power and UPS for power even during a blackout, this server represents the leading edge in high availability. An internal tape drive is included to back up that all important asset...data. A modem could be included to allow out-of-band (non-LAN) system management utilizing the integrated Netfinity Advanced System Management Processor.

Server Consolidation

Part Number	Description	Quantity	Usage
8666-11Y	Netfinity 7100 550 MHz/512 KB Xeon, 256 MB(R) ECC, Open, 40X, PCI (Rack 8U)	1	-
33L3113	Netfinity 128 MB, 100 MHz ECC SDRAM RDIMM	4	768 MB Total System Memory
33L5056	Netfinity 550 MHz/512 KB Upgrade II with Pentium III Xeon Processor	1	Total of 2 SMP processors
36L9748	Netfinity 9.1 GB 10K-3 Wide Ultra2 SCSI Hot-Swap SL HDD	2	9.1 GB mirrored for NOS
36L9749	Netfinity 18.2 GB 10K-3 Wide Ultra2 SCSI Hot-Swap SL HDD	8	109 GB RAID 5 with hot-spare
37L6086	Netfinity ServeRAID-3HB Ultra2 SCSI Adapter	1	RAID 1 for NOS, RAID 5 for data
34L1501	Netfinity 10/100 Ethernet PCI Adapter 2	2	Total of 3 Ethernet connections
00N7990	40/80 GB DLT Internal SCSI Tape Drive	1	-
33L3760	Netfinity 250 W Hot-Swap Redundant Power Supply	1	Full Power Redundancy
654841N	G76 UV-NH Color Monitor 17" (406 mm, 16" Viewable Image Size), stealth black	1	-
94G3136	APC Smart-UPS 1400	1	UPS

This tower model is configured to meet the need of server consolidation. Many businesses are trying to get their arms around the dispersed departmental servers that have grown up around the enterprise. By moving multiple servers onto one platform there is only one system to manage, both hardware and software. There is potentially less expense for service, software licenses, etc., and there is no need to worry about putting all your eggs in one basket because the Netfinity 7100 is designed for high availability. This configuration includes 109 GB of internal HDD storage, features a third power supply which provides fully redundant power, a UPS to help protect the system against a momentary electricity loss, and an internal tape drive that backs up, up to 80 GB per tape...in addition to all the standard features of the Netfinity 7100.

IBM Netfinity 7600 Configurator

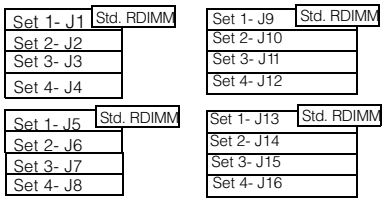
Part Number	Processor Speed (MHz)[2]	Number of Processors (Std./Max) L2 ECC Cache (KB)	Memory (Std./Max) (R = RDIMM)	Form Factor	Power Supply Quantity (Std./Max)	Hot-Swap (Power, Slots, HDD, Fans)	Redundancy (Optional, Standard)	Adv. System Management Processor	Onboard Ethernet (Mbps)	SCSI Controller (Dual, Ultra, RAID)	Removable Media Bays (Total/Avail) Internal Hard Disk Drive (Std./Max)	CD-ROM (IDE)	Bays: (Total/Avail) Slots: (Total/Avail)
8665-1RY[1]	550	1/4	1024	512MB(R)/16GB[3]	Rack(8U)	3/4	P, S, H,F	S-Fans S-Power[4]	Y	10/100	D,U2, R	4/2	0/364GB	40X- 17X[5]	14/12	6/5
8665-2RY[1]	550	1/4	2048	512MB(R)/16GB[3]	Rack(8U)	3/4	P, S, H,F	S-Fans S-Power[4]	Y	10/100	D,U2, R	4/2	0/364GB	40X- 17X[5]	14/12	6/5

1. Housed in a 19" Rack mountable drawer and ships standard without a keyboard or mouse. See "Rack and NetBAY" under "Netfinity 7600 Power, Monitor & Accessories" for supported IBM racks.
2. Intel Pentium III Xeon processor with advanced transfer (full speed) L2 cache and 100 MHz access to memory and I/O buses.
3. Advanced Chipkill ECC memory corrects two-, three-, and four-bit memory errors. Maximum capacity is dependent on future availability of Netfinity 1 GB 100 MHz ECC SDRAM RDIMM (P/N 33L3119).
4. Robust configurations may require optional Netfinity 250 W Hot-Swap Redundant Power Supply (P/N 33L3760) for redundancy. See "Power" under Netfinity 7600 Power, Monitor & Accessories" for additional information.
5. Variable read rate. Actual playback speed will vary and is often less than the maximum possible.

Netfinity 7600 Processor Upgrades

Part Number	Processor Upgrades with Full Speed Cache	SMP Support[1]	Processor Speed Upgrade[2]
33L5057	Netfinity 550 MHz/1 MB Upgrade II with Pentium III Xeon Processor	1xY	-
33L5058	Netfinity 550 MHz/2 MB Upgrade II with Pentium III Xeon Processor	2xY	1xY

1. Three additional processors may be installed, providing a maximum of four. All processors must be identical in type, speed, and cache size.
2. Requires removal of the standard processor. A maximum of four processors may be installed. All processors must be identical in type, speed and cache size. Upgrades may require a BIOS update. To obtain the latest Flash BIOS, access www.ibm.com/pc/support and enter machine "Type-Model" in Quick Path. Select "Downloadable files" and then "BIOS".



All RDIMMs installed in each set must be the same size , but all the sets do not have to contain RDIMMs of the same size . Install RDIMM sets in numerical sequence from 1 to 4.

Total Memory[1]	Quantity of RDIMMs Added[2]			
	128 MB (33L3113)	256 MB (33L3115)	512 MB (33L3117)	1 GB (33L3119)
512 MB	4 x 128 RDIMMs standard	-	-	-
1.0 GB	4	-	-	-
1.5 GB	-	4	-	-
2.0 GB	4	4	-	-
2.5 GB	-	8	-	-
3.0 GB	4	-	4	-
4 GB	4	4	4	-
5 GB	4	-	8	-
6 GB[3]	-	8	8	-
7 GB[3]	-	4	12	-
8 GB[3]	-	-	16	-
9 GB	4	-	-	8
10 GB[3]	-	-	12	4
12 GB[3]	-	-	8	8
14 GB[3]	-	-	4	12
16 GB[3] (max)	-	-	-	16

This table does not represent all possible memory configurations. Memory modules may vary in price per MB. Selection of smaller RDIMMs may provide a more cost-effective alternative to using larger RDIMMs.
1. Network Operating Systems may limit the maximum amount of addressable memory. See operating system specifications for further information.
2. To obtain the Quantity of memory identified in the "Total Memory" column, select the appropriate row and order the quantity of RDIMMs identified in all columns for that row. Example: For 2.0 GB, order 4 x 33L3113 plus 4 x 33l3115.
3. Requires removal of standard RDIMMs.

Part Number	Memory Description[1]
33L3113	Netfinity 128 MB, 100 MHz ECC SDRAM RDIMM
33L3115	Netfinity 256 MB, 100 MHz ECC SDRAM RDIMM
33L3117	Netfinity 512 MB, 100 MHz ECC SDRAM RDIMM
33L3119	Netfinity 1 GB 100 MHz ECC SDRAM RDIMM[2]

1. Due to four-way interleaving all RDIMMs installed in each set must be the same size, but all the sets do not have to contain RDIMMs of the same size. Memory must be installed in sets of four identical RDIMMs (example: quantity 4 of 33L3113). Install RDIMM sets in numerical sequence from Set 1 to Set 4. Chipkill support is provided on the memory card.
2. Planned availability of second quarter 2000.

Netfinity 7600 Hard Disk Drive (HDD) Storage

Total Int. Storage[1]	7200RPM Hard Disk Drives (HDDs)			10,000RPM Hard Disk Drives (HDDs)		
	9.1 GB (P/N 36L9744 or 37L7201)[2]	18.2 GB (P/N 36L9745 or 37L7202)[2]	36.4 GB (P/N 36L9746 or 37L7203)[2]	9.1 GB (P/N 36L9748 or 37L7204)[2]	18.2 GB (P/N 36L9749 or 37L7205)[2]	36.4 GB (P/N 36L9750 or 37L7206)[2]
0 GB	Standard on Base Models			Standard on Base Models		
9.1 GB	1	-	-	1	-	-
18.2 GB	2	1	-	2	1	-
27.3 GB	3	-	-	3	-	-
36.4 GB	4	2	1	4	2	1
45.5 GB	5	-	-	5	-	-
54.6 GB	6	3	-	6	3	-
63.7GB	7	-	-	7	-	-
72.8 GB	8	4	2	8	4	2
81.9GB	9	-	-	9	-	-
91 GB	10	5	-	10	5	-
109.2 GB	-	6	3	-	6	3
127.4GB	-	7	-	-	7	-
145.6GB	-	8	4	-	8	4
163.8GB	-	9	-	-	9	-
182GB	-	10	5	-	10	5
218.4GB	-	-	6	-	-	6
254.8GB	-	-	7	-	-	7
291.2 GB	-	-	8[3]	-	-	8[3]
327.6 GB	-	-	9[3]	-	-	9[3]
364 GB (max)	-	-	10[3]	-	-	10[3]

This table does not represent all possible hard drive configurations.
1. Select a total storage row then select the quantity of HDDs from a column corresponding to the hard disk drive of choice. Total Internal Storage listed is within ± 0.2 GB unless otherwise noted.
2. Ultra160 HDDs are limited to a maximum of Ultra2 bus speeds.
3. Part numbers 36L9746 and 36L9750 are half-high devices and therefore cannot be utilized for configurations requiring greater than a quantity of seven.

Bay	Form Factor	Height	Front Access	Usage
-	89 mm (3.5")	SL	Yes	Diskette
-	133 mm (5.25")	HH	Yes	IDE CD-ROM
RM 1	133 mm (5.25")	HH[1]	Yes	Open
RM 2	133 mm (5.25")	HH[1]	Yes	Open
1…10 or 1…7	HS	SL or HH[2]	Yes	Open
NB3[3]	19" Rack	3U	Yes	Open

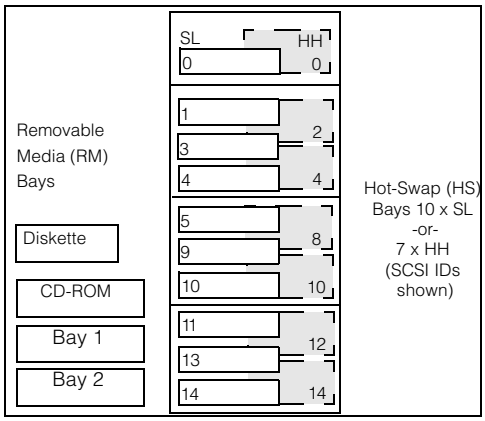
Part Number	Description	RPM	Height	Bays Supported	Max. Qty.
	Ultra2 Hard Disk Drives (HDD)				
36L9744	Netfinity 9.1 GB Wide Ultra2 SCSI Hot-Swap SL HDD	7200	SL	See diagram	10
36L9745	Netfinity 18.2 GB Wide Ultra2 SCSI Hot-Swap SL HDD	7200	SL	See diagram	10
36L9746	Netfinity 36.4 GB Wide Ultra2 SCSI Hot-Swap HDD	7200	HH[2]	See diagram	7
36L9748	Netfinity 9.1 GB 10K-3 Wide Ultra2 SCSI Hot-Swap SL HDD	10,000	SL	See diagram	10
36L9749	Netfinity 18.2 GB 10K-3 Wide Ultra2 SCSI Hot-Swap SL HDD	10,000	SL	See diagram	10

1. Two half-high (HH) bays can be combined to support a single full-high (FH) device
2. The top bay is HH; all others are configured in groups of 3 SL bays. When a HH drive is installed in one of these groups, only another HH or a single SL drive can be installed in the same group. For clarity, the SCSI IDs are identified.
3. Tower configured systems (Netfinity 8Ux24D Rack-to-Tower Kit, P/N 37L6860 is required and includes a single NetBAY3) support installation of up to three NetBAY3s. See IBM Netfinity NetBAY3 Stackable Enclosure section for supported devices.

36L9750	Netfinity 36.4 GB 10K-3 Wide Ultra2 SCSI Hot-Swap HDD	10,000	HH[2]	See diagram	7
Ultra160 Hard Disk Drives (HDD)[1]					
37L7201	Netfinity 9.1 GB Ultra160 SCSI Hot-Swap SL HDD	7200	SL	See diagram	10
37L7202	Netfinity 18.2 GB Ultra160 SCSI Hot-Swap SL HDD	7200	SL	See diagram	10
37L7203	Netfinity 36.4 GB Ultra160 SCSI Hot-Swap SL HDD[7]	7200	SL	See diagram	10
37L7204	Netfinity 9.1 GB 10K-4 Ultra160 SCSI Hot-Swap SL HDD[8]	10,000	SL	See diagram	10
37L7205	Netfinity 18.2 GB 10K-4 Ultra160 SCSI Hot-Swap SL HDD[8]	10,000	SL	See diagram	10
37L7206	Netfinity 36.4 GB 10K-4 Ultra160 SCSI Hot-Swap SL HDD[8]	10,000	SL	See diagram	10

	External Storage Expansion Units[3]	**Form Factor**
35301RU	Netfinity EXP200 Storage Expansion Unit[4]	Rack (3U)
37L5857	Netfiinity EXP200 Rack-to-Tower Conversion Kit	-
37L0075	Netfinity EXP200 350 W Redundant Power Supply	-
35311RU	Netfinity EXP300 Storage Expansion Unit[5, 8]	Rack (3U)
09N7296	Netfinity EXP300 Rack-to-Tower Conversion Kit[8]	-
35601RU	Netfinity FAStT EXP500 Storage Expansion Unit[6]	Rack (3U)

1. Ultra160 HDDs are limited to a maximum of Ultra2 bus speeds.
2. Two slim-line (SL) bays can be combined to support a single half-high (HH) device. See Bay diagram for identification of which bays can be combined. A mixture of HH, SL, 10,000 rpm and 7,200 rpm drives is supported.
3. Not supported by the onboard external SCSI port. Select an optional SCSI controller then refer to Appendix D: Cables-Storage Units-Controllers to confirm the controller supports the desired External Storage Expansion Unit and to select a supported cable. For HDD or other expansion unit options, see the specific expansion unit section.
4. Netfinity EXP200 includes a single 2 M Ultra2 SCSI cable and a single hot-swap 350 W power supply and power cord. Optional hot-swap Netfinity EXP200 350 W Redundant Power Supply (P/N 37L0075) includes an additional power cord. To convert an EXP200 to a tower form factor, Netfinity EXP200 Rack-to-Tower Conversion Kit (P/N 37L5857) is required.
5. Netfinity EXP300 includes a single 2 M Ultra2 SCSI cable and dual hot-swap 500 W power supplies, each with its own power cord. To convert an EXP300 to a tower form factor, Netfinity EXP300 Rack-to-Tower Conversion Kit (P/N 09N7296) is required.
6. Netfinity FAStT EXP500 Storage Expansion Unit (P/N 35601RU) includes dual hot-swap 350 W power supplies, each with its own power cord.
7. Planned availabilty of June 1, 2000.
8. Planned availability of June 30, 2000.



1. The top bay is HH; all others are configured in groups of three SL bays. When a HH drive is installed in one of these groups, only another HH or a single SL drive can be installed in the same group. For clarity, the SCSI IDs are identified.

Internal SCSI Cabling

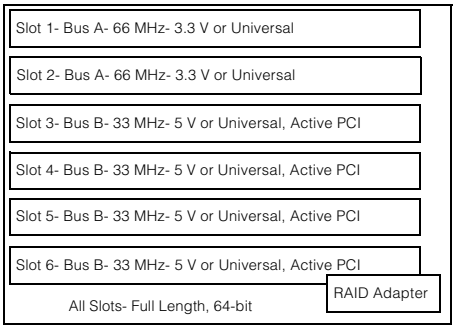
The Netfinity 7600 contains a DASD backplane supporting ten hot-swap, SCA-2 compliant drive bays. The backplane is connected to the internal connector of the standard Netfinity ServeRAID-3HB Ultra2 SCSI Adapter through a 16-bit LVD SCSI cable. External RAID support is provided through the two external 0.8-mm VHDCI connectors on the back of the adapter. To support SCSI devices in the internal 133/89-mm (5.25/3.5-inch) half-high bays, a two-drop, 16-bit LVD SCSI cable with integrated terminator is included with the server. This cable can be used to connect Channel B of the integrated Wide Ultra2 SCSI controller to SCSI devices in one or both of the removable media bays. Channel A, of the dual-channel, Wide Ultra2 SCSI controller, only supports external SCSI attachment and is cabled directly to an external 0.8-mm VHDCI SCSI connector.

Netfinity 7600 I/O Options

Part Number	Description	Adapter Length	PCI Support	Slots Supported[1]	Hot-Plug[2]	PCI Voltage Key	MHz
	Storage Controllers[3]						
37L6086	Netfinity ServeRAID-3HB Ultra2 SCSI Adapter[4]	Full	32/64-bit	3...6[5]	X	5	33
02K3454	PCI Fast/Wide Ultra SCSI Adapter	Half	32-bit	3...6	-	5	33
37L6080	Netfinity ServeRAID-4M Ultra160 SCSI Controller[6, 18]	Full	32/64-bit	1...6	X	Universal	33
37L6889	Netfinity ServeRAID-4H Ultra160 SCSI Controller[7, 18]	Full	32/64-bit	1...6	X	Universal	33
	Fiber Storage Controllers and Options[8]						
01K7297	Netfinity Fibre Channel PCI Adapter	Half	32/64-bit	1...6	-	Universal	33
35261RU	Netfinity Fibre Channel RAID Controller Unit	-	-	-	-	-	-
01K7296	Netfinity Fibre Channel Failsafe RAID Controller	-	-	-	-	-	-
35231RU	Netfinity Fibre Channel Hub	-	-	-	-	-	-
00N6881	Netfinity FAStT Host Adapter	Half	32/64-bit	1...6	X	Universal	66
35521RU	Netfinity FastT500 RAID Controller	-	-	-	-	-	-
2109S08	SAN Fibre Channel Switch, 8-port	-	-	-	-	-	-
2109S16	SAN Fibre Channel Switch, 16-port	-	-	-	-	-	-
	Networking[9]						
	Ethernet						
34L1501	Netfinity 10/100 Ethernet PCI Adapter 2	Half	32-bit	1...6	X	Universal	33
08L3341	Netfinity 10/100 Fault Tolerant Adapter	Half	32-bit	3...6	X	5	33
34L0301	Netfinity Gigabit Ethernet SX Adapter	Half	32/64-bit	1...6	X	Universal	33
	Token Ring						
34L0501	Token-Ring 100/16/4 High-Speed PCI Adapter	Half	32-bit	1...6	-	Universal	33
34L0701	Token-Ring 16/4 PCI Adapter 2 with Wake on LAN[10]	Half	32-bit	1...6	X	Universal	33
	Communications[11]						
33L4618	PCI V.90 56 Data/Fax Modem[12]	Half	32-bit	3...6	-	5	33
	Systems Management[13]						
01K7209	Netfinity Advanced System Management PCI Adapter[14]	Full	32-bit	3...6[15]	-	5	33
03K9309	Netfinity Advanced System Management Interconnect Cable Kit[16]	-	-	-	-	-	-
36L9654	Netfinity Advanced System Management Token-RIng Connection[17]	-	-	-	-	-	-

1.The 5 V slots support Universal or 5 V adapters. The 3.3 V slots support universal or 3.3 V adapters. A Universal keyed 66 MHz adapter plugged into a 33 MHz slot will operate at 33 MHz. A Universal keyed 33 MHz adapter plugged into a 66 MHz slot limits other adapters installed on the same bus to 33 MHz.
2. Netfinity 7600 slots 3-6 include hot-plug capability using IBM's Active PCI technology. For Network Operating System support access URL www.ibm.com/pc/us/compat
3. Netfinity 7600 ships with a Netfinity ServeRAID-3HB Ultra2 SCSI Adapter (P/N 37L6086) installed in slot 6 and also includes a dual-port, dual-channel, 64-bit Wide Ultra2 SCSI controller with one internal connector and one external port with a 0.8-mm Very High Density Connection Interface (VHDCI).
4. Netfinity ServeRAID-3HB Ultra2 SCSI Adapter (P/N 37L6086) provides one internal and 2 external (0.8-mm VHDCI) LVDS SCSI channels. The internal channel can be configured for external usage (0.8-mm VHDCI connector) providing a total of 3 external LVDS SCSI channels. Includes 32MB of mirrored battery-backup cache which helps protect against data loss in write-back cache mode in the event of a power outage or adapter maintenance.
5. A total quantity of eight, in any combination of 01K7364, 37L6086, and 01K7207 is supported.
6. Netfinity ServeRAID-4M Ultra160 SCSI Controller is powered by a 100 MHz Intel i960 processor and provides two channels, 64 MB of battery-backed ECC cache and two internal and two external Ultra160 connectors (only two connectors may be utilized). External connectors are 0.8-mm VHDCI.
7. Netfinity ServeRAID-4H Ultra160 SCSI Controller is powered by a 266 MHz PowerPC 750 processor and provides 128 MB of battery-backed ECC cache with two internal and up to four external Ultra160 connectors (only four connectors may be utilized). External connectors are 0.8-mm VHDCI.
8. See Netfinity Fibre Array Solutions section for additional configuration information.
9. Netfinity 7600 includes a full-duplex, 10/100 Mbps Ethernet PCI Controller.
10. The Wake on LAN function of this option is not supported by Netfinity servers.
11. Netfinity 7600 includes two USB ports, two high-speed serial/asynchronous ports (NS16550A compatible), and one high-speed (up to 2 MB/sec. data transfer speed) bi-directional parallel port supporting devices using ECP/EPP/SSP protocols adhering to the IEEE 1284 standard.
12. Due to homologation variances, modem availability may differ by country.
13. The Netfinity Advanced Systems Management Processor and Interconnect Bus integrated into Netfinity 7600 works with Netfinity Director to provide significant system management function. When used with optional Netfinity Advanced System Management PCI Adapter (P/N 01K7209) and Netfinity Advanced System Management Interconnect Cable Kit (P/N 03K9309) additional management and control of up to 12 service processors from a remote console through a single modem or LAN connection is possible.
14. Includes PCI adapter, Netfinity Advanced System Management Interconnect Cable Kit components and 56-watt AC adapter which requires a separate power source. Provides an integrated 10/100 Ethernet port and PCMCIA slot to support optional Netfinity Advanced System Management Token-Ring Connection (P/N 36L9654).
15. A maximum quantity of one is supported.
16. Required for all Netfinity servers containing a standard Advanced System Management Processor that are to be interconnected for system management support through a LAN or modem connection (Netfinity 5500 models 8660-1...4xU are not supported). Up to 12 service processors may be interconnected (including standard and optional processors) with an aggregate connection length of no more than 91.4 meters (300 ft.). A customer-supplied Ethernet cable is required for each interconnection.

17. Contains an IBM Turbo 16/4 Token-Ring PCI Card, which installs in the PCMCIA card slot of Netfinity Advanced System Management PCI Adapter, and a PC Card to 9-pin D-Shell cable which is routed to a rear chassis cut-out. The Netfinity Advanced System Management PCI Adapter's integrated Ethernet port and Netfinity Advanced System Management Token-Ring Connection cannot be connected or used together. To download the latest firmware access URL www.pc.ibm.com/us/netfinity. Select "Server Support", "Family", "Model", "Downloadable files", and finally "Advanced Systems Management".
18. Planned availability of June 30, 2000.


Slot 1- Bus A- 66 MHz- 3.3 V or Universal
Slot 2- Bus A- 66 MHz- 3.3 V or Universal
Slot 3- Bus B- 33 MHz- 5 V or Universal, Active PCI
Slot 4- Bus B- 33 MHz- 5 V or Universal, Active PCI
Slot 5- Bus B- 33 MHz- 5 V or Universal, Active PCI
Slot 6- Bus B- 33 MHz- 5 V or Universal, Active PCI
RAID Adapter
All Slots- Full Length, 64-bit

Netfinity 7600 Power, Monitor & Accessories

Part Number	Description
	Power[1]
33L3760	Netfinity 250 W Hot-Swap Redundant Power Supply
	Uninterruptable Power Supply (UPS)[2]
94G3135	APC Smart-UPS 1000
94G3136	APC Smart-UPS 1400
94G6674	APC Smart-UPS 1400RMB[3]
94G6676	APC Smart-UPS 3000RMB[3]
37L6861	APC Smart-UPS 5000RMB[4]
	Monitors[5]
6331B2N	E54 Color Monitor 15" (350-mm, 13.8" Viewable Image Size), stealth black[6]
6332J1N	E74 Color Monitor 17" (403-mm, 15.9" Viewable Image Size), stealth black[6]
654841N	G76 Color Monitor 17" (406-mm, 16" Viewable Image Size), stealth black[6]
65494AN	G96 Color Monitor 19" (454-mm, 17.9" Viewable Image Size), stealth black[8]
9513AG1	T55A Flat Panel Color Monitor (381-mm, 15.0" Viewable Image Size), stealth black[7]
9519AG1	T85A Flat Panel Color Monitor (459-mm, 18.1" Viewable Image Size), stealth black[8]

1. Netfinity 7600 includes three 250W hot-swap redundant power supplies, with the ability to accept one additional Netfinity 250 W Hot-Swap Redundant Power Supply (P/N 33L3760. Each power Supply includes its own 9-foot power cord for attachment to a low voltage UPS, PDU or wall outlet. To assist in determining when an additional power supply is required to preserve redundancy, a "Non-Redundant LED" is a standard feature of the Netfinity 7600. Predicting whether or not a particular configuration will require an additional power supply for redundancy is very complex. However, once the system is installed, the"Non-Redundant LED" will indicate when an additional power supply is required. The following sample configuration is provided as a reference.

Number of Power Supplies	System Configuration Supported
	Typical Redundant Configuration
	4 x Processors
3[9]	6 x PCI Adapters
	7 x Half-High or 10 Slim-Line HDDs
	16 x 512 MB RDIMMs
4	**Full Configuration with Redundancy**

Part Number	Description
	Conversion Kits
37L6860	Netfinity 8Ux24D Rack-to-Tower Kit[1]
	Rack and NetBAY[2]
930842P	Netfinity Enterprise Rack
930842X	Netfinity Enterprise Expansion Cabinet
9306900	Netfinity Rack
9306200	Netfinity NetBAY22
10L6912	Netfinity NetBAY3[3]
	Keyboard and Mouse[4]
28L3644	Space Saver II Keyboard[5, 7]
01K1260	TrackPoint IV 104-Key Black Keyboard[6,7]
28L3621	Preferred Keyboard (stealth black)[6]
28L3673	Sleek 2-Button Stealth Black Mouse

1. Includes one Netfinity NetBAY3 with casters.
2. Netfinity 7600 rack models are housed in a 19" rack mountable drawer and require one of the racks listed here. See IBM Netfinity Rack Cabinet and Options section for IBM rack supported devices.
3. Netfinity 7600 requires Netfinity 8Ux24D Rack-to-Tower Kit(P/N 37L6860) for use with a NetBAY3. A maximum of three NetBAY3 enclosures, including the one which ships with the conversion kit, may be stacked beneath a supported Netfinity tower server. Optional NetBAY3s must be shipped separately and not while attached to the base configuration. See IBM Netfinity NetBAY3 Stackable Enclosure section for supported devices.
4. Netfinity 7600 ships without a keyboard or mouse.
5. Installation within a rack requires optional keyboard tray P/N 28L4707 (stows in "ready-to-use" position).
6. Installation within a rack requires optional keyboard tray P/N 28L4707. This keyboard cannot share a keyboard tray with a flat panel display.
7. Advanced TrackPoint IV features are not available on IBM Netfinity systems.

2. For runtimes and UPS attributes see Appendix C: UPS Runtime Estimate.
3. Height is 3U. See "Rack and NetBAY" for supported IBM racks.
4. Height is 5U. See "Rack and NetBAY" for supported IBM racks.
5. Netfinity 7600 uses an SVGA controller (S3 Trio 3D chipset) with 4 MB of video memory.
6. Installation within a rack requires optional Monitor Compartment (P/N 94G7444).
7. Installation within a rack requires optional Netfinity Flat Panel Monitor Rack Mount Kit (P/N 37L6857) and Netfinity Rack Keyboard Tray (P/N 28L4707). A space saver keyboard may coexist within the same 28L4707 keyboard tray.
8. Not supported for installation in a 19" rack.
9. The addition of a DLT tape drive may require a fourth power supply to preserve redundancy.

Netfinity 7600 Tape Options

Part Number	Tape Drives	Bays Supported	SCSI Interface (bit)	Form Factor	Termination Included	68/50-pin Converter Incl.	Ext. Tape Enclosures
00N7991	20/40 GB DDS/4 4-mm Internal Tape Drive	1, 2	16 Ultra2 LVD	89 mm (3.5") HH or 133 mm (5.25") HH	Y[1]	N	3510020 3551001
01K1325	20/40 GB 8-mm Internal SCSI Tape Drive	1, 2	16	133 mm (5.25") HH	N[2]	N	3510020[4], 3551001
00N7990	40/80 GB DLT Internal SCSI Tape Drive	1/2	16 Ultra2 LVD	133 mm (5.25") FH	N[2]	N	3503BOX[4], 3551001
	Associated Options						
32G3918	SCSI-2 16-bit Active Terminator	-	16	Ext.	Y	N	3510020, 3503BOX
	Tape Autoloaders						
3502108	DLT Tape Autoloader	N/A	16	Desktop	Y	-	-
	External Tape Libraries[3]						
3502x14	DLT Tape Library	-	16	Desktop or Rack	Y	-	-

1. Tape drive is capable of self termination.
2. Netfinity 7600 includes a terminated, 2-drop, 16-bit, LVD SCSI cable for attachment from the onboard SCSI controller or supported adapter to devices in the removable media bays.
3. Tape library attributes and prerequisites are located in Appendix B: Tape Library Attributes.
4. Requires SCSI-2 16-bit Active Terminator (P/N 32G3918).

NOTE: SCSI support for tape drives is provided by system unit onboard or PCI Fast Wide Ultra SCSI Adapter P/N 02K3454.

For a complete list of all IBM and non-IBM option compatibility with Network Operating Systems and IBM Netfinity Servers, access the ServerProven™ compatibility pages on the Web at URL www.ibm.com/pc/us/compat.

Sample Configurations

Note: The following sample configurations are for illustration only and may not be suitable for any specific customer installation. Contact your IBM Business Partner or IBM Marketing Representative for assistance with your specific configuration requirements.

High Availability Application Server

Part Number	Description	Quantity	Usage
8665-2RY	Netfinity 7600 550/2 MB Xeon, 512 MB(R) ECC,RAID, Open, 40X, PCI (Rack 8U)	1	-
33L3113	Netfinity 128 MB, 100 MHz ECC SDRAM RDIMM	4	-
33L3115	Netfinity 256 MB, 100 MHz ECC SDRAM RDIMM	4	-
33L3117	Netfinity 512 MB, 100 MHz ECC SDRAM RDIMM	4	4 GB Total System Memory
33L5058	Netfinity 550 MHz/2 MB Upgrade II with Pentium III Xeon Processor	3	Total of 4 SMP processors
36L9744	Netfinity 9.1 GB Wide Ultra2 SCSI Hot-Swap SL HDD	2	9.1 GB mirrored for NOS
36L9745	Netfinity 18.2 GB Wide Ultra2 SCSI Hot-Swap SL HDD	6	72 GB RAID 5 with Hot-Spare
00N7990	40/80 GB DLT Internal SCSI Tape Drive	1	-
33L3760	Netfinity 250 W Hot-Swap Redundant Power Supply	1	Full Power Redundancy
654841N	G76 UV-NH Color Monitor 17" (406-mm, 16" Viewable Image Size), stealth black	1	-
28L3644	Space Saver II Keyboard	1	-
94G6674	APC Smart-UPS 1400RMB	1	-
	External Storage		
35301RU	Netfinity EXP200 Storage Expansion Unit	1	Includes 2-m Ultra2 cable
37L0075	Netfinity EXP200 350 W Redundant Power Supply	1	-
36L9750	Netfinity 36.4 GB 10K-3 Wide Ultra2 SCSI Hot-Swap HDD	10	RAID 5 Data Storage with Hot-Spare

Rack			
9306200	Netfinity NetBAY22	1	
28L0542	Netfinity Console Server Selector Switch (4-port)	1	
94G6667	Power Cable- Type A14	1	
94G7447	12ft Console Cable Set	1	
94G6670	Blank Filler Panel Kit	1	

This rack server is configured to act as the foundation for business critical applications, applications your business cannot afford to be without. Configured with enough disk drives to mirror the operating system and provide a standard RAID 5 environment for data, optional hot-swap redundant power and UPS for power even during a blackout, this server represents the leading edge in high availability. An internal tape drive is included to back up that all important asset...data. A modem could be included to allow out-of-band (non-LAN) system management utilizing the integrated Netfinity Advanced System Management Processor.

Server Consolidation

Part Number	Description	Quantity	Usage
8665-1RY	Netfinity 7600 550/1 MB Xeon, 512 MB(R) ECC, RAID, Open, 40X, PCI (Rack 8U)	1	-
33L3113	Netfinity 128 MB, 100 MHz ECC SDRAM RDIMM	4	1 GB Total System Memory
33L5057	Netfinity 550 MHz/1 MB Upgrade II with Pentium III Xeon Processor	1	Total of 2 SMP processors
36L9748	Netfinity 9.1 GB 10K-3 Wide Ultra2 SCSI Hot-Swap SL HDD	2	9.1 GB mirrored for NOS
36L9749	Netfinity 18.2 GB 10K-3 Wide Ultra2 SCSI Hot-Swap SL HDD	8	109 GB RAID 5 with Hot-Spare
34L1501	Netfinity 10/100 Ethernet PCI Adapter 2	3	Total of 4 Ethernet connections
00N7990	40/80 GB DLT Internal SCSI Tape Drive	1	-
654841N	G76 UV-NH Color Monitor 17" (406 mm, 16" Viewable Image Size), stealth black	1	-
28L3644	Space Saver II Keyboard	1	-
94G6674	APC Smart-UPS 1400RMB	1	-
Rack			
9306200	Netfinity NetBAY22	1	-
28L0542	Netfinity Console Server Selector Switch (4-port)	1	-
94G6667	Power Cable - Type A14	1	Attaches to monitor
94G7447	12ft Console Cable Set	1	-
94G6670	Blank Filler Panel Kit	2	-

This rack server is configured to meet the need of server consolidation. Many businesses are trying to get their arms around the dispersed departmental servers that have grown up around the enterprise. By moving multiple servers on to one platform there is only one system to manage, both hardware and software. There is potentially less expense for service, software licenses, etc., and there is no need to worry about putting all your eggs in one basket because the Netfinity 7600 is designed for high availability. This configuration includes 109 GB of internal HDD storage, features three power supplies which provide fully redundant power, a UPS to help protect the system against a momentary electricity loss, and an internal tape drive that backs up, up to 80 GB per tape...in addition to all the standard features of the Netfinity 7600.

IBM Netfinity 8500R Configurator

Part Number	Processor Speed (MHz)[2]	Number of Processors (Std./Max)	L2 ECC Cache (KB)	Memory (Std./Max) (R=RDIMM)	Form Factor	Power Supply Quantity (Std./Max)	Hot-Swap (Power, Slots, HDD, Fans)	Redundancy (Optional, Standard)	Adv. System Management Processor[3]	Onboard Ethernet (Mbps)	SCSI Controller (Dual, Ultra, RAID)	Removable Media Bays (Total/Avail)	Internal Hard Disk Drive (Std./Max)	CD-ROM (IDE)	Bays (Total/Avail)	Slots (Total/Avail)
8681-4RY[1]	550	1/8	512	256 MB^{R}/ 16GB	Rack (8U)	3/3	P, S, H, F	S-Fans, S-Power	Y	-	D, U2	2/0	0/72.8 GB	40X-17X[4]	4/2	12/12
8681-5RY[1]	550	1/8	1024	512 MB^{R}/ 16 GB	Rack (8U)	3/3	P, S, H, F	S-Fans, S-Power	Y	-	D, U2	2/0	0/72.8 GB	40X-17X[4]	4/2	12/12
8681-6RY[1]	550	1/8	2048	512 MB^{R}/ 16 GB	Rack (8U)	3/3	P, S, H, F	S-Fans, S-Power	Y	-	D, U2	2/0	0/72.8 GB	40X-17X[4]	4/2	12/12

1. Housed in a 19" Rack mountable drawer and ships standard without a keyboard or mouse. See "Rack and NetBAY" under "Netfinity 8500R Power, Monitor & Accessories" for supported IBM racks.
2. Intel Pentium III Xeon processor.
3. Netfinity 8500R includes a systems management adapter equivalent to the one shipped with option 01K7209 (Netfinity Advanced System Management PCI Adapter).
4. Variable read rate. Actual playback speed will vary and is often less than the maximum possible.

Netfinity 8500R Processor Upgrades

Part Number	Processor Upgrades with 512 KB, 1 MB or 2 MB Cache[1]	SMP Support	Processor Speed/Cache Upgrade[4]
33L5103	Netfinity 8500R 550 MHz/512 KB Upgrade with Pentium III Xeon Processor[3]	4RY[2, 3]	-
33L5104	Netfinity 8500R 550 MHz/1 MB Upgrade with Pentium III Xeon Processor[3]	5RY[2, 3]	4RY
33L5105	Netfinity 8500R 550 MHz, 2 MB Upgrade with Pentium III Xeon Processor[3]	6RY[2, 3]	4...5RY
28L4730	Netfinity 8500R>4-Way Enablement Kit (1X SRAM)[5]	All	All
28L4727	Netfinity 8500R>4-Way Enablement Kit (4X SRAM)[5]	All	All

1. Netfinity 8500R architecture optimizes memory and bus performance using a 100 MHz, five-port crossbar core chipset. Up to eight Pentium III Xeon processors are supported on two 100 MHz P-6 CPU buses. The recommended order of processor installation is: Sockets A1, A3, A2, A4, B1, B3, B2, B4.
2. Up to seven additional processors may be installed, providing a maximum of eight. All processors must be identical in type, speed, and cache size.
3. For installation of greater than four processors, a Netfinity 8500R>4-way Enablement Kit (1X SRAM, P/N 28L4730) or (4X SRAM, P/N 28L4727) is required. The option of using either kit with any processor/cache combination provides the opportunity to configure for multiple performance levels. All four standard processor sockets should be populated prior to installing processors on an Enablement Kit.
4. Requires removal of the standard processor(s). A maximum of eight processors may be installed. Greater than four requires Enablement Kit P/N 28L4730 or 28L4727. For better performance, all four standard processor sockets should be populated prior to installing processors on an Enablement Kit. All processors must be identical in type, speed and cache size. Upgrades may require a BIOS update. To obtain the latest Flash BIOS, access www.ibm.com/pc/support and enter machine "Type-Model" in Quick Path. Select "Downloadable files" and then "BIOS".
5. Netfinity 8500R>4-Way Enablement Kits consist of a processor daughter board with four Pentium III Xeon processor sockets with terminators. They contain either two-1X (256 K entries) or two-4x (1 M entries) cache coherency filter modules used to improve bus utilization through effective coherency "snoop" bus traffic management on the processor buses. The 4X option is for applications that require the highest level of performance in combination with higher performing 2 MB L2 cache processor options.

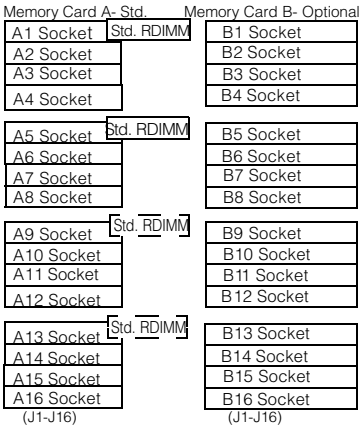
Netfinity 8500R Memory

Total System Memory[1]		Quantity of RDIMMs Added		
Standard Models				
256 MB (2 x 128)	512 MB (4 x 128)	128 MB (20L0245)	256 MB (20L0247)	512 MB (20L0249)
384	640	1	-	-
512	768	2 or	1	-
640	896	3	-	-
768	1024	4 or	2 or	1
896	1152	5	-	-
1024	1280	6 or	3	-
1152	1408	7	-	-
1280	1536	8 or	4 or	2
1408	1664	9	-	-
1536	1792	10 or	5	-
1664	1920	11	-	-
1792	2048	12 or	6 or	3
2304	2560	16[2] or	8 or	4
2560	2816	18[2] or	9	-
2816	3072	20[2] or	10 or	5
3072	3328	22[2] or	11	-
3328	3584	24[2] or	12 or	6
3840	4096	28[2] or	14[2] or	7
4096	-	30[2] or	16[3] or	-
4352	4608	-	16[2] or	8
4864	5120	-	18[2] or	9
5376	5632	-	20[2] or	10
5888	6144	-	22[2] or	11
6400	6656	-	24[2] or	12
8192	8192	-	32[2, 3] or	16[3]
8448	8704	-	-	16[2]
9472	9728	-	-	18[2]
10496	10752	-	-	20[2]
11520	11776	-	-	22[2]
12544	12800	-	-	24[2]
13568	13824	-	-	26[2]
14592	14848	-	-	28[2]
16384 (max)	16384 (max)	-	-	32[2, 3]

This table does not represent all possible memory configurations. Memory modules may vary in price per MB. Selection of smaller RDIMMs may provide a more cost-effective alternative to using larger RDIMMs.

NOTE: Cache line interleaving may be enabled by installing Netfinity 8500R Memory Expansion Card (P/N 28L4454) with as few as two RDIMMs. Matched pairs must be installed if the memory expansion card is present.

1. Network Operating Systems may limit the maximum amount of addressable memory. See the operating system specifications for further information.
2. Netfinity 8500R Memory Expansion Card (P/N 28L4454) is required for installation of greater than 16 RDIMMs.
3. Requires removal of standard memory.



Recommended order of RDIMM population for optimum cooling: 1, 5, 9, 13, 3, 7, 11, 15, 2, 6, 10, 14, 4, 8, 12, 16.

Part Number	Memory Description[1]
20L0245	Netfinity 128 MB SDRAM ECC RDIMM II
20L0247	Netfinity 256 MB SDRAM ECC RDIMM II
20L0249	Netfinity 512 MB SDRAM ECC RDIMM II
28L4454	Netfinity 8500R Memory Expansion Card[2]

1. Netfinity 8500R includes a single memory card with the ability to support up to 8 GB of memory. Model 8681-4RY contains two RDIMMs standard, other models contain four. For memory installation of greater than 8 GB, Netfinity 8500R Memory Expansion Card (P/N 28L4454) is required. Installation of memory on systems containing a single memory card (standard on all models) has no restrictions on size or placement. When Netfinity 8500R Memory Expansion Card (P/N 28L4454) is installed, the memory RDIMM in each socket of Card A must match the RDIMM in the same socket on Card B. To enable cache line interleaving, both memory cards must be installed and configured identically.
2. Required for enablement of cache line interleaving or installation of greater than 16 RDIMMs. Configuration of the standard memory card (Card A) and optional 28L4454 (Card B) must be identical.

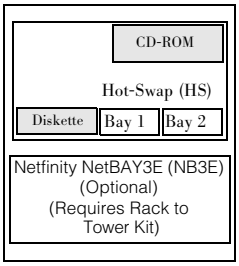
Netfinity 8500R Hard Disk Drive (HDD) Storage

Total Internal Storage[1]	7200 RPM Hard Disk Drives (HDDs)			10,000 RPM HDDs		
	9.1 GB (P/N 36L9744 or 37L7201)[2]	18.2 GB (P/N 36L9745 or 37L7202)[2]	36.4 GB (P/N 36L9746 or 37L7203)[2]	9.1 GB (P/N 36L9748 or 37L7204)[2]	18.2 GB (P/N 36L9749 or 37L7205)[2]	36.4 GB (P/N 37L7206)
0 GB	Standard on Base Models			Standard on Base Models		
9.1 GB	1	-	-	1	-	-
18.2 GB	2	1	-	2	1	-
36.4 GB	-	2	1	-	2	1
72.8 GB (max)	-	-	2	-	-	2

This table does not represent all possible hard drive configurations.
1. Total Internal Storage listed is within ± 0.2 GB unless otherwise noted.

Bay	Form Factor	Height	Front Access	Usage
-	133 mm (5.25")	HH	Yes	IDE CD-ROM
-	89 mm (3.5")	SL	Yes	Diskette
1...2	HS	HH	Yes	Open
NB3E[1]	19" Rack	3U	Yes	Open

1. A total of three optional 3U NetBAY3Es can be stacked beneath a Netfinity 8500R which has Netfinity 8Ux28D Rack-to-Tower Kit (P/N 28L4705) installed. See IBM Netfinity NetBAY3x Stackable Enclosure section for supported devices.



Part Number	Description	RPM	Height	Bays Supported	Max Qty.
	Ultra2 Hard Disk Drives (HDD)				
36L9744	Netfinity 9.1 GB Wide Ultra2 SCSI Hot-Swap SL HDD	7200	SL	1, 2	2
36L9745	Netfinity 18.2 GB Wide Ultra2 SCSI SL HDD	7200	SL	1, 2	2
36L9746	Netfinity 36.4 GB Wide Ultra2 SCSI Hot-Swap HDD	7200	HH	1, 2	2
36L9748	Netfinity 9.1 GB 10K-3 Wide Ultra2 SCSI Hot-Swap SL HDD	10000	SL	1, 2	2
36L9749	Netfinity 18.2 GB 10K-3 Wide Ultra2 SCSI Hot-Swap SL HDD	10000	SL	1, 2	2
36L9750	Netfinity 36.4 GB 10K-3 Wide Ultra2 SCSI Hot-Swap HDD	10000	HH	1, 2	2
	Ultra160 Hard Disk Drives (HDD)[1]				
37L7201	Netfinity 9.1 GB Ultra160 SCSI Hot-Swap SL HDD	7200	SL	1, 2	2
37L7202	Netfinity 18.2 GB Ultra160 SCSI Hot-Swap SL HDD	7200	SL	1, 2	2
37L7203	Netfinity 36.4 GB Ultra160 SCSI Hot-Swap SL HDD[6]	7200	SL	1, 2	2
37L7204	Netfinity 9.1 GB 10K-4 Ultra160 SCSI Hot-Swap SL HDD[7]	10,000	SL	1, 2	2
37L7205	Netfinity 18.2 GB 10K-4 Ultra160[7]	10,000	SL	1, 2	2
37L7206	Netfinity 36.4 GB 10-K Ultra160 SCSI Hot-Swap SL HDD[7]	10,000	SL	1, 2	2

	External Storage Expansion Units[2]	Form Factor	
35202RU	Netfinity EXP15 Storage Expansion Unit	Rack (3U)	35202RU
35301RU	Netfinity EXP200 Storage Expansion Unit[3]	Rack (3U)	35301RU
37L5857	Netfinity EXP200 Rack-to-Tower Conversion Kit	Tower	37L5857
37L0075	Netfinity EXP200 350 W Redundant Power Supply	-	37L0075
35311RU	Netfinity EXP300 Storage Expansion Unit[4, 7]	Rack (3U)	35311RU
09N7296	Netfinity EXP300 Rack-to-Tower Conversion Kit[7]	-	09N7296
35601RU	Netfinity FAStT EXP500 Storage Expansion Unit[5]	Rack (3U)	35601RU

1. Ultra160 HDDs are limited to a maximum of Ultra2 bus speeds.
2. Not supported by the onboard external SCSI port. Select an optional SCSI controller then refer to Appendix D: Cables-Storage Units-Controllers to confirm the controller supports the desired External Storage Expansion Unit and to select a supported cable. For HDD or other expansion unit options, see the specific expansion unit section.
3. Netfinity EXP200 includes a single 2 M Ultra2 SCSI cable and a single hot-swap 350W power supply and power cord. Optional hot-swap Netfinity EXP 350 W Redundant Power Supply (P/N 37L0075) includes an additional power cord. To convert and EXP200 to a tower form factor, Netfinity EXP200 Rack-to-Tower Conversion Kit (P/N 09N7296) is required.
4. Netfinity EXP300 includes a single 2 M Ultra2 SCSI cable and dual hot-swap 500 W redundant power supplies, each with its own power cord. To convert an EXP300 to a tower form factor, Netfinity EXP300 Rack-to-Tower Conversion Kit (P/N 09N7296) is required.
5. Netfinity FAStT EXP500 Storage Expansion Unit (P/N 35601RU) includes dual hot-swap power supplies, each with its own power cord.
6. Planned availability of June 1, 2000.
7. Planned availability of June 30, 2000.

Internal SCSI Cabling

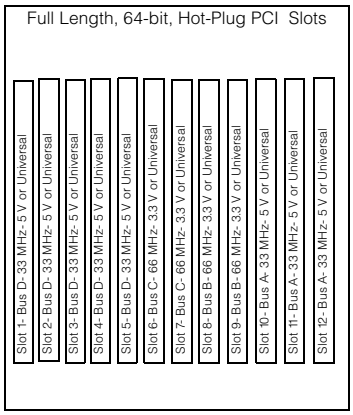
Netfinity 8500R systems contains an LVDS backplane supporting two hot-swap drive bays that support installation of up to two 3.5-inch, slim-high or half-high HDDs. The backplane is connected to the internal Wide Ultra2 SCSI controller through a 16-bit LVD SCSI cable. RAID support for the internal hot-swap drive bays is provided by adding a supported RAID adapter and moving the standard SCSI cable from the onboard controller to the optional RAID controller. The standard external Wide Ultra2 SCSI port uses a 0.8-mm Very High Density Connector Interface (VHDCI).

Netfinity 8500R I/O Options

Part Number	Description	Adapter Length	PCI Support	Slots Supported[1]	Hot-Plug[2]	PCI Voltage Key	MHz
	Storage Controllers[3]						
01K7364	Netfinity ServeRAID-3L Ultra2 SCSI Adapter[4]	Full	32-bit	(1...5, 10...12)[8]	X	5	33
19K0564	Netfinity ServeRAID-3L Ultra2 SCSI Adapter II[4]	Full	32-bit	(1...5, 10...12)[8]	X	5	33
37L6086	Netfinity ServeRAID-3HB Ultra2 SCSI Adapter[5]	Full	32/64-bit	(1...5, 10...12)[8]	X	5	33
37L6080	Netfinity ServeRAID-4M Ultra160 SCSI Controller[6, 23]	Full	32/64-bit	1...12	X	Universal	33
37L6889	Netfinity ServeRAID-4H Ultra160 SCSI Controller[7]	Full	32/64-bit	1...12	X	Universal	33
02K3454	PCI Fast/Wide Ultra SCSI Adapter	Half	32-bit	1...5, 10...12	-	5	33
09L2123	Advanced SerialRAID/X Adapter	Full	32-bit	1...12[10]	-	Universal	33
	Fibre Storage Controllers[9]						
01K7297	Netfinity Fibre Channel PCI Adapter	Half	32/64-bit	1...12	-	Universal	33
35261RU	Netfinity Fibre Channel RAID Controller Unit	-	-	-	-	-	-
01K7296	Netfinity Fibre Channel Failsafe RAID Controller	-	-	-	-	-	-
00N6881	Netfinity FAStT Host Adapter	Half	32/64-bit	1...12	X	Universal	66
35521RU	Netfinity FAStT500 RAID Controller	-	-	-	-	-	-
2109S08	SAN Fibre Channel Switch, 8-Port	-	-	-	-	-	-
2109S16	SAN Fibre Channel Switch, 16-Port	-	-	-	-	-	-
	Networking[11]						
	Ethernet						
34L1501	Netfinity 10/100 Ethernet PCI Adapter 2	Half	32-bit	1...12	X	Universal	33
08L3341	Netfinity 10/100 Fault Tolerant Adapter	Half	32-bit	1...5, 10...12	X	Universal	33
09N9901	10/100 EtherLink Server Adapter by 3Com	Half	32-bit	1...12	X	Universal	33
34L0301	Netfinity Gigabit Ethernet SX Adapter	Half	32/64-bit	1...12	X	Universal	33
	Token Ring						
34L0501	Token-Ring 100/16/4 High-Speed PCI Adapter	Half	32-bit	1...12	-	Universal	33
34L0601	Token-Ring 16/4 PCI Adapter 2	Half	32-bit	1...5, 10...12	X	5[12]	33
34L0701	Token-Ring 16/4 PCI Adapter 2 with Wake on LAN[13]	Half	32-bit	1...12	X	Universal	33
	Communications[14]						
33L4618	PCI V.90 56 Data/Fax Modem[15]	Half	32-bit	1...5, 10...12	-	5	33
37L14xx	Serial I/O SST 8, 16 and 128 Port Adapters[16]	Half	32-bit	(1...5, 10...12)[16]	-	5	33
	Systems Management[17]						
03K9309	Netfinity Advanced Systems Management Interconnect Cable Kit[18]	-	-	-	-	-	-
36L9654	Netfinity Advanced System Management Token-Ring Connection[19]	-	-	-	-	-	-
02K6545	UltraSlim 56 W AC Adapter[20]	-	-	-	-	-	-
	Host Attach						
9086001	Netfinity ESCON Adapter[21]	Full	32-bit	(1...5, 10...12)[22]	-	5	33

1. The P-6 I/O bus supports four independent 64-bit PCI buses, two of which drive eight 33 MHz, 5.0 V slots (1-5, 10-12), while the other two buses drive four 66 MHz, 3.3 V slots (6-9). The 5 V slots support Universal or 5 V adapters. A 66 MHz adapter plugged into these slots will operate at 33 MHz. The 3.3 V slots support Universal or 3.3 V adapters. A 33 MHz adapter plugged into these slots limits a 66 MHz PCI adapter installed on the same bus to 33 MHz.
2. All 12 Slots are hot-plug capable using IBM's Active PCI technology. For Network Operating System support access URL www.ibm.com/pc/us/compat.
3. Netfinity 8500R includes a dual-port, dual-channel, 64-bit Wide Ultra2 SCSI controller which supports either Single Ended (SE) or Low Voltage Differential SCSI (LVDS) modes. One internal connector and one external port with a 0.8-mm Very High Density Connection Interface (VHDCI) are standard. The internal LVD SCSI cable has sufficient length to attach to an adapter located in slots 10...12. If a boot device (internal or external) is to be attached to an adapter, the adapter must reside in slots 10...12 due to BIOS scanning sequences.
4. Netfinity ServeRAID-3L Ultra2 SCSI Adapter (P/N 01K7364) and "...Adapter II" (P/N 19K0564) provide either one internal or one external (0.8-mm VHDCI) LVDS SCSI channel. Netfintiy ServeRAID-3L Ultra2 SCSI Adapter II (P/N 19K0564) is a planned replacement for P/N 01K7364.
5. Netfinity ServeRAID-3HB Ultra2 SCSI Adapter (P/N 37L6086) provides one internal and two external (0.8 mm VHDCI) LVDS SCSI channels. The internal channel can be configured for external usage (0.8 mm VHDCI) providing a total of three external LVDS SCSI channels. Includes 32 MB of mirrored battery-backup cache, which helps protect against data loss in write-back cache mode in the event of a power outage or adapter maintenance.
6. Netfinity ServeRAID-4M Ultra160 SCSI Controller is powered by a 100 MHz Intel i960 processor and provides two channels, 64 MB of battery-backed ECC cache and two internal and two external Ultra160 connectors (only two connectors may be utilized). External connectors are 0.8-mm VHDCI.
7. Netfinity ServeRAID-4H Ultra160 SCSI Controller is powered by a 266 MHz PowerPC 750 processor and provides 128 MB of battery-backed ECC cache with two internal and up to four external Ultra160 connectors (only four connectors may be utilized). External connectors are 0.8-mm VHDCI.
8. A total quantity of eight, in any combination of 01K7363, 37L6086, and 01K7207 is supported.
9. See Netfinity Fibre Array Solutions section for additional configuration information.
10. A maximum quantity of four is supported.
11. Netfinity 8500R does not include an onboard network controller.
12. Early versions of Token-Ring 16/4 PCI Adapter 2 (P/N 34L0601) were keyed as Universal; current versions are keyed for 5 V. All versions are supported in 5 V PCI slots only.
13. The Wake on LAN function of this option is not supported by Netfinity servers.
14. Netfinity 8500R includes two USB ports, two high-speed serial/asynchronous ports, (NS 16550A compatible), and one high-speed (up to 2 MBps data transfer speed) bi-directional parallel port supporting devices using ECP/EPP/SSP protocols adhering to the IEEE 1284 standard.
15. Due to homologation variances, modem availability may differ by country.
16. See Appendix E for details on Serial I/O options and configuration limitations. A maximum of four Serial I/O adapters (any combination of P/N 37L1414, 37L1415, 37L1416, 37L1423) may be installed.

17. Netfinity 8500R ships standard with a Netfinity Advanced System Management PCI Adapter.
18. Required for all Netfinity Servers containing a standard Advanced System Management Processor that are to be interconnected for system management support through a LAN or modem connection (Netfinity 5500 models 8660-1...4xU are not supported). Up to 12 service processors may be interconnected (including standard and optional processors) with an aggregate connection length of no more than 91.4 meters (300 ft). A customer-supplied Ethernet cable is required for each interconnection.
19. Contains an IBM Turbo 16/4 Token-Ring PCI Card, which installs in the PCMCIA card slot of Netfinity Advanced System Management PCI Adapter and a PC Card to 9-pin D-Shell cable which is routed to a rear chassis cut-out. The Netfinity Advanced System Management PCI Adapter's integrated Ethernet port and Netfinity Advanced System Management Token-Ring Connection cannot be connected or used together. To download the latest firmware, access URL www.ibm.com/pc/us/netfinity. Select "Server Support", "Family", "Model", "Downloadable Files" and finally "Advanced System Management".
20. Although the 8500R integrated Netfinity System Management PCI Adapter is powered continuously through the redundant power supply subsystem, an even higher level of availability is offerred with the addition of UltraSlim 56 W AC Adapter by allowing an independent power source or connection to a separate optional UPS.
21. Provides an ESCON MIC and DB9 Serial Port. Cables are not included but are available through S/390 channels. Contact your IBM representative for additional information.
22. A maximum of two 9086001 adapters (installed in non-adjacent slots) are supported in a single Netfinity server.
23 Planned availability of June 30, 2000.


Full Length, 64-bit, Hot-Plug PCI Slots
Slot 1- Bus D- 33 MHz- 5 V or Universal
Slot 2- Bus D- 33 MHz- 5 V or Universal
Slot 3- Bus D- 33 MHz- 5 V or Universal
Slot 4- Bus D- 33 MHz- 5 V or Universal
Slot 5- Bus D- 33 MHz- 5 V or Universal
Slot 6- Bus C- 66 MHz- 3.3 V or Universal
Slot 7- Bus C- 66 MHz- 3.3 V or Universal
Slot 8- Bus B- 66 MHz- 3.3 V or Universal
Slot 9- Bus B- 66 MHz- 3.3 V or Universal
Slot 10- Bus A- 33 MHz- 5 V or Universal
Slot 11- Bus A- 33 MHz- 5 V or Universal
Slot 12- Bus A- 33 MHz- 5 V or Universal

Netfinity 8500R Power, Monitor & Accessories

Part Number	Description
	Power[1]
	Uninterruptible Power Supply (UPS)[2]
94G6676	APC Smart-UPS 3000RMB[3]
37L6861	APC Smart-UPS 5000RMB[4]
	Monitors[5]
65464AN	G54 Color Monitor 15" (348 mm, 13.7" Viewable Image Size), stealth black[6]
65474AN	G74 Color Monitor 17" (403 mm, 15.9 Viewable Image Size), stealth black[6]
6331B2N	E54 Color Monitor 15" (350-mm, 13.8" Viewable Image Size), stealth black[6]
6332J1N	E74 Color Monitor 17" (403-mm, 15.9" Viewable Image Size), stealth black[6]
654841N	G76 Color Monitor 17" (406-mm, 16" Viewable Image Size), stealth black[6]
65494AN	G96 Color Monitor 19" (454 mm, 17.9" Viewable Image Size), stealth black[7]
9513AG1	T55A Flat Panel Color Monitor (381 mm, 15.0" Viewable Image Size), stealth black[8]
9519AG1	T85A Flat Panel Color Monitor (459-mm, 18.1" Viewable Image Size), stealth black[7]

1.Netfinity 8500R systems contain three 750 W (at 220 V), hot-swap power supplies which handle robust configurations while providing full redundancy. When operating at 110 V, redundancy is limited to configurations not exceeding six processors, 24 memory RDIMMs, or eight PCI adapters. Each system ships with 9 power cords: 3 x 220 V, 3 x 110 V, 3 x intra-rack 220 V. Even though multiple UPSs may provide redundant power sources, systems management software does not currently take advantage of its power outage alerts.
2. For runtimes and UPS attributes see Appendix C: UPS Runtime Estimates.
3. Height is 3U. See "Rack and NetBAY" for supported IBM racks.
4. Height is 5U. See "Rack and NetBAY" for supported IBM racks.
5. Netfinity 8500R uses an SVGA controller (S3 Trio 3D chipset) with 4 MB of video memory.
6. Installation within a rack requires optional Monitor Compartment (P/N 94G7444).
7. Not supported for installation in a 19" rack
8. Installation within a rack requires optional Netfinity Flat Panel Monitor Rack Mount Kit (P/N 37L6857) and Netfinity Rack Keyboard Tray (P/N 28L4707). A space saver keyboard may coexist within the same 28L4707 keyboard tray.

Part Number	Description
	Conversion Kits
28L4705	Netfinity 8Ux28D Rack-to-Tower Kit[1]
	Rack and NetBAY[2]
930842P	Netfinity Enterprise Rack
930842X	Netfinity Enterprise Expansion Cabinet
9306900	Netfinity Rack[3]
36L9703	Netfinity Rack Extension Kit
9306200	Netfinity NetBAY22[4]
36L9702	NetBAY22 Rack Extension Kit
36L9701	Netfinity NetBAY3E[5]
	Keyboard and Mouse[6]
28L3644	Space Saver II Keyboard[7, 8]
01K1260	TrackPoint IV 104-Key Black Keyboard[8, 9]
28L3621	Preferred Keyboard (stealth black)[9]
28L3673	Sleek 2-Button Stealth Black Mouse

1. Includes one Netfinity NetBAY3E with casters.
2. Netfinity 8500R is housed in a 19" rack mountable drawer and requires one of the racks listed here. See "IBM Netfinity Rack Cabinet and Options" section for IBM rack supported devices.
3. Netfinity Rack Extension Kit (P/N 36L9702) is required for proper rear door closure clearance.
4. NetBAY22 Rack Extension Kit (P/N 36L9703) is required for proper rear door closure clearance.
5. A maximum of three NetBAY3E enclosures may be stacked beneath a supported Netfinity tower server (conversion kit 28L4705 required). See IBM Netfinity NetBAY3X Stackable Enclosure section for supported devices.
6.Netfinity 8500R ships without a keyboard or mouse.
7. Installation within a rack requires optional keyboard tray P/N 28L4707 (stows in "ready-to-use" position).
8. Advanced TrackPoint IV features are not available on IBM Netfinity sy.stems.
9. Installation within a rack requires optional keyboard tray P/N 28L4707. This keyboard cannot share a keyboard tray with a flat panel display.

Netfinity 8500R Tape Options

Part Number	Description	Bays Supported	SCSI Interface (bit)	Form Factor	Termination Included	68/50-pin Converter Incl.	Ext. Tape Encl.[1]
00N7991	20/40 GB DDS/4 4-mm Internal Tape Drive	N/A[2]	16 Ultra2 LVD	89 mm (3.5") HH or 133 mm (5.25") HH	Y[3]	N	3510020, 3551001
01K1325	20/40 GB 8-mm Internal SCSI Tape Drive	N/A[2]	16	133 mm (5.25") HH	N	N	3510020[4] 3551001
01K1320	20/40 GB DLT Internal SCSI Tape Drive	N/A[2]	8	133 mm (5.25") FH	Y[3]	Y	3503B0X, 3551001
04K0149	35/70 GB DLT Internal SCSI Tape Drive	N/A[2]	16	133 mm (5.25") FH	N	N	3503B0X[4], 3551001
00N7990	40/80 GB DLT Internal SCSI Tape Drive	N/A[2]	16 Ultra2 LVD	133 mm (5.25") FH	N	N	3503B0X[4], 3551001
Associated Options							
32G3918	SCSI-2 16-bit Active Terminator	-	16	External	Y	N	3510020, 3503B0X
External Tape Enclosures							
3510020	External Half High SCSI Storage Enclosure[5]	-	8/16	Desktop	N	N	-
3551001	NetMEDIA Storage Expansion Unit EL[6]	-	16	Rack	Y	N	-
10L7113	NetMEDIA Systems Management Adapter[7]	-	16 LVD	-	N	N	3551001
3503BOX	DLT External SCSI Enclosure[8]	-	16	Desktop	N	N	-
External Tape Libraries[9]							
3570xxx	Magstar MP 3570 Tape Subsystem (models B2x and C2x)	-	Differential	Rack	Y	-	-

1. To determine cable requirements, note the tape drive's SCSI interface, the appropriate SCSI controller from the system configurator section and the desired enclosure, then refer to Appendix D: Cables - Storage Units - Controllers.
2. Netfinity 8500R supports tape drives installed in external enclosures only. See External Tape Enclosure column.
3. Tape drive is capable of self termination.
Provides a black desktop 5.25" half-high (HH) tape enclosure. Connector is configurable as 50-pin Centronix or 68-pin high density. Requires either tape drive self-termination or SCSI-2 16-bit Active Terminator (P/N 32G3918).
4. Requires SCSI-2 16-bit Active Terminator (P/N 32G3918).
5. Provides a black desktop 5.25" half-high (HH) tape enclosure. Connector is configurable as 50-pin Centronix or 68-pin high density. Requires either tape drive self termination or SCSI-2 16-bit Active Terminator (P/N 32G3918).
6. Provides a black 3U, 19" rack or NetBAY3 mountable tape enclosure. Provides two full high (FH) or four half high (HH) extended length 5.25" bays. External connector is 0.8mm VHDCI. Includes two power supplies and two power cords.
7. Installs in 3551001. Provides repeater function and LVDS interface allowing longer cable lengths and auto-termination when the 3551001 is powered off.
8. Provides a black desktop DLT tape enclosure with a 68-pin high density external connector. Requires termination by the tape drive or by installation of a SCSI-2 16-bit Active Terminator (P/N 32G3918).
9. Tape library attributes and prerequisites are located in Appendix B: Tape Library Attributes.

NOTE: SCSI support for tape drives is provided by system unit onboard (standard) controller (no-RAID function) or PCI Fast Wide Ultra SCSI Adapter P/N 02K3454. Additional tape attributes can be found in Appendix A: Tape Drive Attributes.

Sample Configurations

The following sample configurations are for illustration only and may not be suitable for any specific customer installation. Contact your IBM Business Partner or IBM Marketing Representative for assistance with your specific configuration requirements.

High Availability-Rack

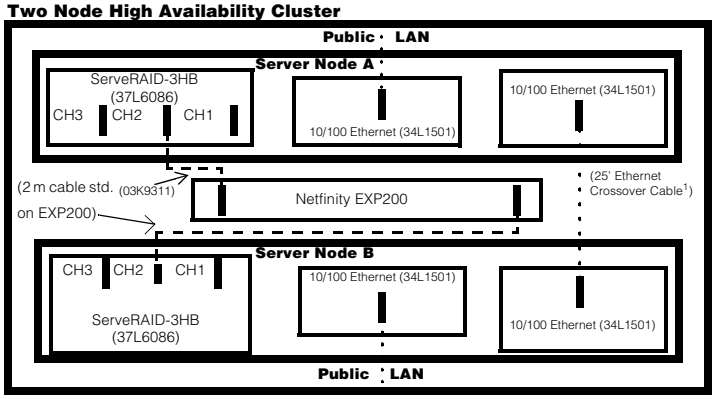
Part Number	Description	Quantity	Usage
8681-4RY	Netfinity 8500R (PIII Xeon 550/512 KB 256 MB/Rack)	1	Power Redundancy standard
33L5103	Netfinity 8500R 550 MHz/512 KB Upgrade with Pentium III Xeon Processor	5	Total of 6 SMP processors
28L4730	Netfinity 8500R>4-Way Enablement Kit (1X SRAM)	1	Required for greater than 4 processors
20L0247	Netfinity 256 MB SDRAM ECC RDIMM II	8	Total of over 2 GB of memory
28L4454	Netfinity 8500R Memory Expansion Card	1	Enables cache line interleaving
36L9744	Netfinity 9.1 GB Wide Ultra2 SCSI Hot-Swap SL HDD	2	NOS mirroring
37L6086	Netfinity ServeRAID-3HB Ultra2 SCSI Adapter	1	RAID Controller - NOS plus EXP200
34L1501	Netfinity 10/100 Ethernet PCI Adapter 2	1	-
65464AN	G54 Color Monitor 15" (348 mm, 13.7" Viewable Image Size), stealth black	1	-
28L3644	Space Saver II Keyboard	1	-
94G6676	APC Smart-UPS 3000RMB	1	-
	External Storage		
3551001	NetMEDIA Storage Expansion Unit EL	1	External Tape Drive Enclosure
00N7990	40/80 GB DLT Internal SCSI Tape Drive	2	Installs in 3551001
35301RU	Netfinity EXP200 Storage Expansion Unit	1	Provides additional 10 bays
37L0075	Netfinity EXP200 350 W Redundant Power Supply	1	-
03K9311	Netfinity 4.2 M Ultra2 SCSI Cable	2	Tape to Onboard SCSI, 3-HB to EXP200
36L9748	Netfinity 9.1 GB 10K-3 Wide Ultra2 SCSI Hot-Swap SL HDD	6	RAID 5 with Hot-Spare in EXP200
	Rack Options		
9306200	Netfinity NetBAY22	1	Monitor and keyboard mount on top
36L9702	NetBAY22 Rack Extension Kit	1	Required for rear door closure
94G6667	Power Cable - Type A14 (4)	5	-
94G6670	Blank Filler Panel Kit	1	-

This high availability server is configured to act as the foundation for business critical applications, applications your business cannot afford to be without. The configuration includes enough disk drives to mirror the operating system and provide a RAID 5 data environment, power supply redundancy by the server and EXP200 and a UPS for power even during a blackout. A rack mounted tape drive is included to back up that all important asset...data. This server represents the leading edge in high availability.

Notes/Exchange-Stack

Part Number	Description	Quantity	Usage
8681-5RY	Netfinity 8500R (PIII Xeon 550/1 MB 512 MB/Rack)	1	Power redundancy standard
33L5104	Netfinity 8500R 550 MHz/1 MB Upgrade with Pentium III Xeon Processor	5	Total of 6 SMP processors
28L4727	Netfinity 8500R>4-Way Enablement Kit (4X SRAM)	1	Required for greater than 4 processors
20L0249	Netfinity 512 MB SDRAM ECC RDIMM II	3	Total of 2 GB of memory
28L4454	Netfinity 8500R Memory Expansion Card	1	Enables cache line interleaving
36L9744	Netfinity 9.1 GB Wide Ultra2 SCSI Hot-Swap SL HDD	2	NOS Mirroring
34L1501	Netfinity 10/100 Ethernet PCI Adapter 2	1	-
37L6086	Netfinity ServeRAID-3HB Ultra2 SCSI Adapter	1	NOS plus EXP200
65464AN	G54 Color Monitor 15" (348 mm, 13.7" Viewable Image Size), stealth black	1	-
28L3644	Space Saver II Keyboard	1	-
94G6676	APC Smart-UPS 3000RMB	1	-
	External Storage		
3551001	NetMEDIA Storage Expansion Unit EL	1	External Tape Enclosure - Install in NetBAY3E
00N7990	40/80 GB DLT Internal SCSI Tape Drive	2	Installs in 3551001
03K9310	Netfinity 2M Ultra2 SCSI Cable	1	Tape to Onboard SCSI
35301RU	Netfinity EXP200 Storage Expansion Unit	1	Provides additional 10 Bays, 1 x 2M cable
37L0075	Netfinity EXP200 350 W Redundant Power Supply	1	-
36L9749	Netfinity 18.2 GB 10K-3 Wide Ultra2 SCSI Hot-Swap SL HDD	10	RAID 5 with Hot-Spare in EXP200
	Stack Options		
28L4705	Netfinity 8Ux28D Rack-to-Tower Kit	1	-
36L9701	Netfinity NetBAY3E	3	3 x 3U enclosure for UPS, EXP200, Tape

Two Node High Availability Cluster



1.Customer supplied Ethernet Crossover Cable may vary in length up to a maximum of 25' (7.6 m).

Two Node High Availability Cluster

Part Number	Description	Quantity	Usage
	Server Nodes A & B		
8681-6RY	Netfinity 8500R (PIII Xeon 550/2 MB 512 MB/Rack) (8U)	2	Power redundancy standard
33L5105	Netfinity 8500R 550 MHz/2 MB Upgrade with Pentium III Xeon Processor	10	Total of 6 SMP processors per node
28L4727	Netfinity 8500R>4-Way Enablement Kit (4X SRAM)	2	Required for greater than 4 processors
20L0247	Netfinity 256 MB SDRAM ECC RDIMM II	16	Total of over 2 GB of memory per node
28L4454	Netfinity 8500R Memory Expansion Card	2	Enables cache line interleaving
34L1501	Netfinity 10/100 Ethernet PCI Adapter 2[1]	4	1 for crossover, 1 for public LAN/node
37L6086	Netfinity ServeRAID-3HB Ultra2 SCSI Adapter[2]	2	RAID controller - NOS plus EXP200
36L9744	Netfinity 9.1 GB Wide Ultra2 SCSI Hot-Swap SL HDD	4	NOS mirroring
94G6676	APC Smart-UPS 3000RMB (3U)	2	-
	External Storage		
3551001	NetMEDIA Storage Expansion Unit EL (3U)	1	External Tape Drive Enclosure
03K9311	Netfinity 4.2 M Ultra2 SCSI Cable[3]	1	3551001 to onboard SCSI
00N7990	40/80 GB DLT Internal SCSI Tape Drive	1	Installs in 3551001
35301RU	Netfinity EXP200 Storage Expansion Unit (3U)[2]	1	Provides additional 10 bays
37L0075	Netfinity EXP200 350 W Redundant Power Supply[2]	1	-
03K9311	Netfinity 4.2 M Ultra2 SCSI Cable[2, 3]	2	3-HB to EXP200
36L9748	Netfinity 9.1 GB 10K-3 Wide Ultra2 SCSI Hot-Swap SL HDD	10	RAID 5 shared storage in EXP200
	Shared (or single occurrence) Resources		
9513AG1	T55A Flat Panel Color Monitor (381 mm, 15.0" Viewable Image Size), stealth black	1	Mounts in keyboard tray
28L3644	Space Saver II Keyboard	1	-
	Rack Options		
930842P	Netfinity Enterprise Rack	1	-
37L6857	Netfinity Flat Panel Monitor Rack-Mount Kit (3U)	1	Mounts in keyboard tray
28L4707	Netfinity Rack Keyboard Tray	1	-
28L0542	Netfinity Console Server Selector Switch (4-port)	1	-
94G6667	Power Cable-Type A14[3]	4	-
94G7447	12 ft. Console Cable Set	2	-
94G6670	Blank Filler Panel Kit	1	-

1. Requires customer supplied Ethernet Crossover Cable which may vary in length up to a maximum of 25' (76 m).
2. By replicating these items, up to a total quantity of four ServeRAID-3HB Adapters (plus options) and eleven EXP200s can provide over 2 Terabytes of storage. Additional power and rack space will be required.
3. Cable length requirements are dependent on component placement within the rack or rack suite. To determine specific configuration requirements use the Netfinity Rack Configurator.

Clustering is a group of interconnected computers used as a single, unified computing resource. Clustering Netfinity servers, like the IBM Netfinity 8500R, provides a high availability solution to keep you in touch with the key applications you need to run your business.

This sample configuration consists of paired IBM Netfinity 8500R cluster nodes equipped with eight-way SMP capability and redundant power supplies. Microsoft Cluster Service (MSCS) has been validated on IBM Netfinity 8500R servers, using the Netfinity ServeRAID-3HB with the EXP200 Storage Expansion Unit. MSCS allows two configured servers, referred to as nodes, to be connected together to form a cluster. Providing system redundancy means that a complete server can fail and client access to server resources is largely unaffected. MSCS extends this theme by also allowing for software failures at an application level as well as an operating system level. If the operating system fails, all applications and services can be restarted on another server, and if just one application fails, it can be managed by MSCS individually. An additional independent network connection is used to perform monitoring within the cluster. One or more disk subsystems are attached to both nodes. In the above example, a Netfinity EXP200 was selected and the Netfinity ServeRAID-3HB Ultra2 SCSI Adapters provide the I/O control. Netfinity ServeRAID-3HB handles the "SCSI heartbeat" connection without the need for a dedicated SCSI connection and logically attaches the quorum disk, which allows arbitration when a failure occurs. Additional information on IBM Netfinity and IBM PC Server Clustering Solutions may be found on the World Wide Web by accessing URL www.ibm.com/pc/us/netfinity/clustering.html.

IBM External Storage Expansion Unit Overview

Part Number	Subsystem Type	Total Bays	Hot-Swap Bays: total, available	Maximum Internal Storage Capacity(GB)	Dimensions (W x D x H)	Form Factor	Max. Cfg. Wt.	Power Supply
35202RU Netfinity EXP15	Ultra SCSI[1]	10	10, 10	364	447 mm x 571.5 mm x 128.8 mm (17.6 in. x 22.5 in. x 5.1 in.)	Rack Drawer (3U)	38.3 kg (84.4 lbs)	Redundant 350 Watts
35301RU Netfinity EXP200	Ultra2 SCSI LVDS	10	10, 10	364	447 mm x 571.5 mm x 128.8 mm (17.6 in. x 22.5 in. x 5.1 in.)	Rack Drawer (3U)[2]	36.1 kg (79.6 lbs)	350 Watts[3]
35311RU Netfinity EXP300	Ultra160 LVDS	14	14, 14[4]	509.6	444 mm x 519 mm x 127.5 mm (17.5 in. x 20.4 in. x 5.0 in.)	Rack Drawer (3U)[2]	34.5 kg (76.1 lbs.)	Redundant 500 Watts
35601RU Netfinity EXP500	Fibre Channel[5]	10	10, 10	364	447 mm x 571.5 mm x 128.8 mm (17.6 in. x 22.2 in. x 5.0 in.)	Rack Drawer (3U)	36.1 kg (79.6 lbs)	Redundant 350 Watts

To attach a Storage Enclosure to an IBM Netfinity Server, the following is required:
* Attachment to an appropriate SCSI or Fibre controller.
* External Cable(s) - See Appendix D: Cables - Storage Units - Controllers.
1. See IBM Netfinity EXP15 Configurator Limitations section for additional information.
2. A rack-to-tower conversion kit option is available.
3. A redundant power supply is available.
4. Supports the use of slim-line drives only.
5. Attachment to a Netfinity FAStT500 RAID Controller (P/N 35521RU) is required for this device to function. See IBM Netfinity EXP500 Configurator section for more information.

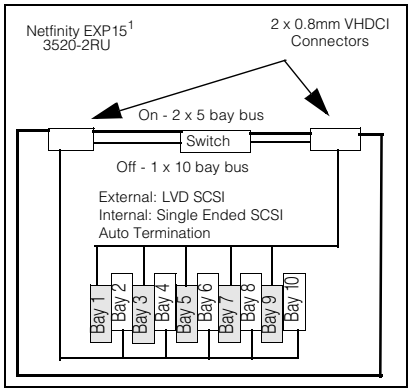
IBM Netfinity EXP15 (3520-2RU) Configurator

Netfinity EXP15 Hard Disk Drive (HDD) Storage

Total Internal Storage[1]	7,200 RPM Hard Disk Drives (HDDs)			10,000 RPM Hard Disk Drives (HDDs)		
	9.1 GB	18.2 GB	36.4 GB	9.1 GB	18.2 GB	36.4 GB
0 GB	Standard on all Base Models			Standard on all Base Models		
18.2 GB	2 x 01K7959 or	1 x 01K8501	-	2 x 36L9809 or	1 x 36L9810	-
36.2 GB	4 x 01K7959 or	2 x 01K8501 or	1 x 02K0442	4 x 36L9809 or	2 x 36L9810 or	1 x 36L9811
54.6 GB	6 x 01K7959 or	3 x 01K8501	-	6 x 36L9809 or	3 x 36L9810	-
72.8 GB	8 x 01K7959 or	4 x 01K8501 or	2 x 02K0442	8 x 36L9809 or	4 x 36L9810 or	2 x 36L9811
91.0 GB	10 x 01K7959 or	5 x 01K8501	-	10 x 36L9809 or	5 x 36L9810	-
109.2 GB	-	6 x 01K8501 or	3 x 02K0442	-	6 x 36L9810 or	3 x 36L9811
145.6 GB	-	8 x 01K8501 or	4 x 02K0442	-	8 x 36L9810 or	4 x 36L9811
182..0 GB	-	10 x 01K8501 or	5 x 02K0442	-	10 x 36L9810 or	5 x 36L9811
218.4 GB	-	-	6 x 02K0442	-	-	6 x 36L9811
254.8 GB	-	-	7 x 02K0442	-	-	7 x 36L9811
291.2 GB	-	-	8 x 02K0442	-	-	8 x 36L9811
3276 GB	-	-	9 x 02K0442	-	-	9 x 36L9811
364 (max)	-	-	10 x 02K0442	-	-	10 x 36L9811

This table does not represent all valid hard drive configurations.
1. Total Internal Storage listed is within +- 0.2 GB unless otherwise noted.

Bay	Form Factor	Height	Front Access	Usage	BUS
Odd #s	HS	HH	yes	open	1
Even #s	HS	HH	yes	open	2



Part Number	Description	RPM	Height	Bays Supported	Max. Qty Supported
01K7959	Netfinity EXP10 9.1 GB Wide Ultra SCSI SCA-2 HDD	7200	HH	All	10
01K8501	Netfinity EXP10 18.2 GB Wide Ultra SCSI SCA-2 HDD	7200	HH	All	10
02K0442	Netfinity EXP 36.4 GB Wide Ultra SCSI SCA-2 HDD	7200	HH	All	10
36L9809	Netfinity EXP 9.1 GB 10K-3 Wide Ultra SCSI Hot-Swap HDD	10,000	SL	All	10
36L9810	Netfinity EXP 18.2 GB 10K-3 Wide Ultra SCSI Hot-Swap HDD	10,000	SL	All	10
36L9811	Netfinity EXP 36.4 GB 10K-3 Wide Ultra SCSI Hot-Swap HDD	10,000	HH	All	10

1. Housed in a 19" rack mountable drawer and ships standard with redundant power supplies and two power cables requiring separate power sources.
Requires IBM Netfinity Enterprise Rack (930842P) or Expansion Cabinet (930842X), Rack (9306900), NetBAY22 (9306200), NetBAY3 (10L6912) or NetBAY3E (36L9701.)
External Storage Expansion Units require storage controllers and external cables. Select a supported controller from the system configurator and cables from Appendix D: Cables-Storage Units-Controllers.

Limitations

The Netfinity EXP15 is not supported when the SCSI channel of the SCSI adapter to which it is attached is split between internal devices and external devices. Each Netfinity EXP15 must be attached to a dedicated SCSI channel of a supported SCSI adapter. Ultra SCSI mode is not supported when external cables are greater than 2.0 meters in length unless attached to a supported Ultra-2 SCSI adapter (other restrictions may apply; see Appendix D). Netfinity EXP15 is supported as a rack drawer and is not supported for stacking directly on top of one another. Netfinity EXP15 can be installed in Netfinity NetBAY3 storage units stacked up to three units high with a supported server on top.

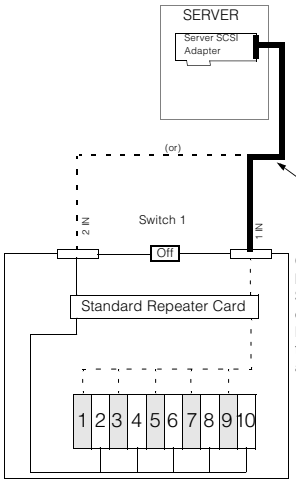
Cables and Controllers:
See Appendix D: Cables - Storage Units - Controllers

Sample Configurations

The following sample configurations are for illustration only and may not be suitable for any specific customer installation. Contact your IBM Business Partner or IBM Marketing Representative for assistance with your specific configuration requirements.

Netfinity EXP15 One Independent SCSI Bus

To configure as a single 10 drive SCSI channel, attach one external cable from the SCSI adapter to either the 1 IN or 2 IN connectors in the EXP15. Set switch 1 to "Off" position.



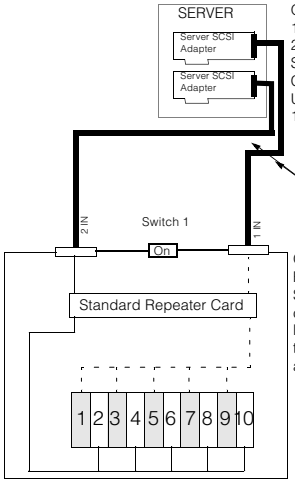
Order:
1 x 3520-2RU
1 x External Cable
See Cables - Storage Units - Controllers section
Up to 10 Disk Drives
19" Rack Space

External cable

Operational mode (SCSI F/W, Ultra SCSI, Ultra-2 SCSI) may be limited by controller, cable, cable length, or hard disk drive type. See Appendix D for additional information.

Netfinity EXP15 Two Independent SCSI Buses

To configure as two independent 5 drive SCSI channels, attach one external cable from the SCSI adapter to the SCSI bus 1 IN connector in the EXP15. Attach a second External SCSI cable from another SCSI adapter, in the same or separate server, to the 2 IN connector in the unit. Set switch 1 to "On" position.



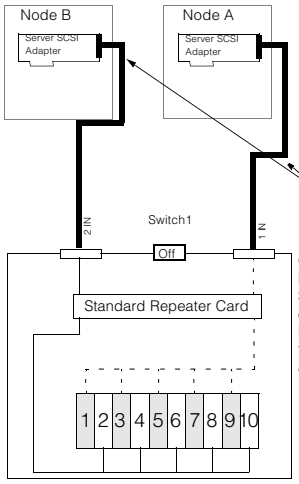
Order:
1 x 3520-2RU
2 x External Cables
See Cables - Storage Units - Controllers section
Up to 10 Disk Drives
19" Rack Space

External cables

Operational mode (SCSI F/W, Ultra SCSI, Ultra-2 SCSI) may be limited by controller, cable, cable length, or hard disk drive type. See Appendix D for additional information.

Netfinity EXP15 One Independent SCSI Bus
High Availability Configuration

To configure a single 10 drive SCSI channel for clustering, attach one external cable from the SCSI adapter in Node A to the 1 IN connector in the EXP15. Connect a second external cable to a SCSI adapter in Node B and to the 2 IN connector in the EXP15.



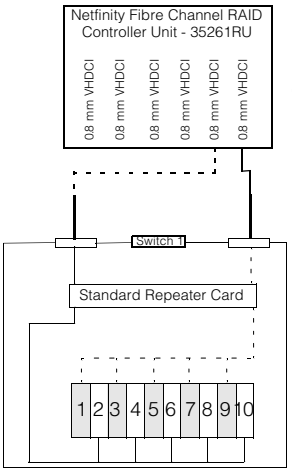
Order:
1 x 3520-2RU
2 x External Cables
See Cables - Storage Units - Controllers section
Up to 10 Disk Drives
19" Rack Space

External cables

Operational mode (SCSI F/W, Ultra SCSI, Ultra-2 SCSI) may be limited by controller, cable, cable length, or hard disk drive type. See Appendix D for additional information.

Netfinity Fibre Channel Solutions Configuration

To configure the Netfinity EXP15 for either cluster or non-cluster applications using a 35261RU, follow the same attachments outline above. Utilizing Fibre Solutions provides support for large amounts of high-performance, RAID protected data storage at distances of up to 10 KM (6 miles) from the server.


Netfinity Fibre Channel RAID Controller Unit - 35261RU
08 mm VHDCI
08 mm VHDCI
08 mm VHDCI
08 mm VHDCI
08 mm VHDCI
08 mm VHDCI
Switch 1
Standard Repeater Card
1 2 3 4 5 6 7 8 9 10

One Independant Bus
- 1 connection only
- Switch 1 off

Two Independant Bus
- 2 connections
- Switch 1 on

See Appendix D for cable selection

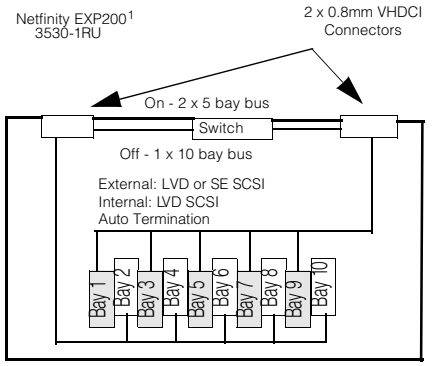
IBM Netfinity EXP200 (35301RU) Configurator

Netfinity EXP200 Hard Disk Drive (HDD) Storage

Total Int. Storage[1]	7200RPM Hard Disk Drives (HDDs)			10,000RPM Hard Disk Drives (HDDs)		
	9.1 GB (P/N 36L9744 or 37L7201)[2]	18.2 GB (P/N 36L9745 or 37L7202)[2]	36.4 GB (P/N 36L9746 or 37L7203)[2]	9.1 GB (P/N 36L9748 or 37L7204)[2]	18.2 GB (P/N 36L9749 or 37L7205)[2]	36.4 GB (P/N 36L9750 or 37L7206)[2]
0 GB	Standard on Base Models			Standard on Base Models		
9.1 GB	1	-	-	1	-	-
18.2 GB	2	1	-	2	1	-
27.3 GB	3	-	-	3	-	-
36.4 GB	4	2	1	4	2	1
45.5 GB	5	-	-	5	-	-
54.6 GB	6	3	-	6	3	-
63.7GB	7	-	-	7	-	-
72.8 GB	8	4	2	8	4	2
81.9GB	9	-	-	9	-	-
91 GB	10	5	-	10	5	-
109.2 GB	-	6	3	-	6	3
127.4GB	-	7	-	-	7	-
145.6GB	-	8	4	-	8	4
163.8GB	-	9	-	-	9	-
182GB	-	10	5	-	10	5
218.4GB	-	-	6	-	-	6
254.8GB	-	-	7	-	-	7
291.2 GB	-	-	8	-	-	8
327.6 GB	-	-	9	-	-	9
364 GB (max)	-	-	10	-	-	10

This table does not represent all possible hard drive configurations.
1. Select a total storage row then select the quantity of HDDs from a column corresponding to the hard disk drive of choice. Total Internal Storage listed is within ± 0.2 GB unless otherwise noted.
2. Ultra160 HDDs are limited to a maximum of Ultra2 bus speeds.

Bay	Form Factor	Height	Front Access	Usage	Bus
Odd #s	HS	HH	yes	open	1
Even #s	HS	HH	yes	open	2



1. Housed in a 19" rack-mountable drawer and ships standard with a single power supply, power cord and 2 meter Ultra2 SCSI cable.
Requires IBM Netfinity Enterprise Rack (P/N 930842P) or Expansion Cabinet (P/N 9308842X), Rack (P/N 9306900), NetBAY22 (P/N 9306200), NetBAY3 (P/N 10L6912) or NetBAY3E (P/N 36L9701).
External Storage Expansion Unit requires storage controllers and external cables. Select a supported controller from the system configurator and cables from Appendix D: Cables-Storage Units-Controllers.

Part Number	Description	RPM	Height	Bays Supported	Max. Qty.
Ultra2 Hard Disk Drives (HDD)					
36L9744	Netfinity 9.1 GB Wide Ultra2 SCSI Hot-Swap SL HDD	7200	SL	1…10	10
36L9745	Netfinity 18.2 GB Wide Ultra2 SCSI Hot-Swap SL HDD	7200	SL	1…10	10
36L9746	Netfinity 36.4 GB Wide Ultra2 SCSI Hot-Swap HDD	7200	HH	1…10	10
36L9748	Netfinity 9.1 GB 10K-3 Wide Ultra2 SCSI Hot-Swap SL HDD	10,000	SL	1…10	10
36L9749	Netfinity 18.2 GB 10K-3 Wide Ultra2 SCSI Hot-Swap SL HDD	10,000	SL	1…10	10
36L9750	Netfinity 36.4 GB 10K-3 Wide Ultra2 SCSI Hot-Swap HDD	10,000	HH	1…10	10
Ultra160 Hard Disk Drives (HDD)[1]					
37L7201	Netfinity 9.1 GB Ultra160 SCSI Hot-Swap SL HDD	7200	SL	1…10	10
37L7202	Netfinity 18.2 GB Ultra160 SCSI Hot-Swap SL HDD	7200	SL	1…10	10
37L7203	Netfinity 36.4 GB Ultra160 SCSI Hot-Swap SL HDD[3]	7200	SL	1…10	10
37L7204	Netfinity 9.1 GB 10K-4 Ultra160 SCSI Hot-Swap SL HDD[4]	10,000	SL	1…10	10
37L7205	Netfinity 18.2 GB 10K-4 Ultra160[4]	10,000	SL	1…10	10
37L7206	Netfinity 36.4 GB 10K-4 Ultra160 SCSI Hot-Swap SL HDD[4]	10,000	SL	1…10	10

	External Storage Expansion Units	Form Factor
35301RU	Netfinity EXP200 Storage Expansion Unit[2]	Rack (3U)
37L5857	Netfinity EXP200 Rack-to-Tower Conversion Kit	-
37L0075	Netfinity EXP200 350 W Redundant Power Supply	-

1. Ultra160 HDDs are limited to a maximum of Ultra2 bus speeds.
2. Netfinity EXP200 Storage Expansion Unit ships with 10 half-high hot-swap bays which can be configured as a single bus, two independent buses or twintailed single bus. Netfinity EXP200 includes a single 2 M Ultra2 SCSI cable and a single hot-swap 350 W power supply and power cord. Optional hot-swap Netfinity EXP200 350 W Redundant Power Supply (P/N 37L0075) includes an additional power cord. To convert an EXP200 to a tower form factor, Netfinity EXP200 Rack-to-Tower Conversion Kit (P/N 37L5857) is required.
3. Planned availabilty of June 1, 2000.
4. Planned availability of June 30, 2000.

Limitations

Netfinity EXP200 hot-swapping of HDDs is restricted to a HDD that is inactive or where a lighted fault LED is indicated. The EXP200 is not supported when the SCSI channel of the SCSI adapter to which it is attached is split between internal devices and external devices. Each EXP200 must be attached to a dedicated SCSI channel of a supported SCSI adapter. The standard EXP200 configuration is supported as a rack drawer and is not currently supported for stacking directly on one another. It can be installed in a Netfinity NetBAY3 or NetBAY3E storage unit and stacked up to three units high, with a supported server on top. In addition, it can be converted to a tower with the addition of a Netfinity EXP200 Rack-to-Tower Conversion Kit (37L5857). See Appendix D: Cables- Storage Units- Controllers for supported controllers and cables. A single two meter cable is included with the EXP200.

Cable Length (Meters)[1]	Maximum MB/s	
	Ultra2 Controller	Ultra Controller
1 and 2	80	40
3	80	20
4.3	80	20
12 and 20	80	N/A

1. The EXP200 ships with a single Ultra2 SCSI cable similar to Netfinity 2 M Ultra2 SCSI Cable (P/N 03K9310).

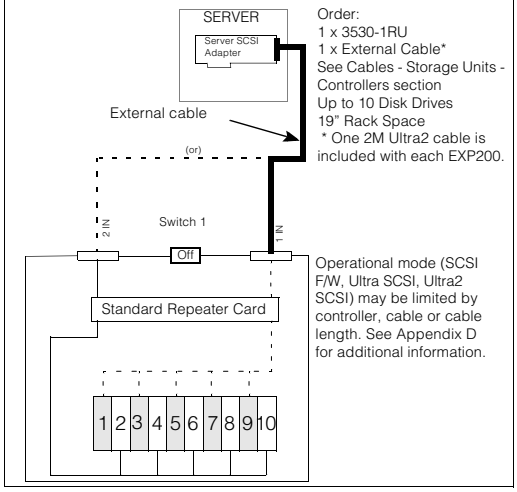
Cables and Controllers:
See Appendix D: Cables - Storage Units - Controllers

Sample Configurations

The following sample configurations are for illustration only and may not be suitable for any specific customer installation. Contact your IBM Business Partner or IBM Marketing Representative for assistance with your specific configuration requirements.

Netfinity EXP200 One Independent SCSI Bus

To configure as a single 10 drive SCSI channel, attach one external cable from the SCSI adapter to either the 1 IN or 2 IN connectors in the EXP200. Set switch 1 to "Off" position.

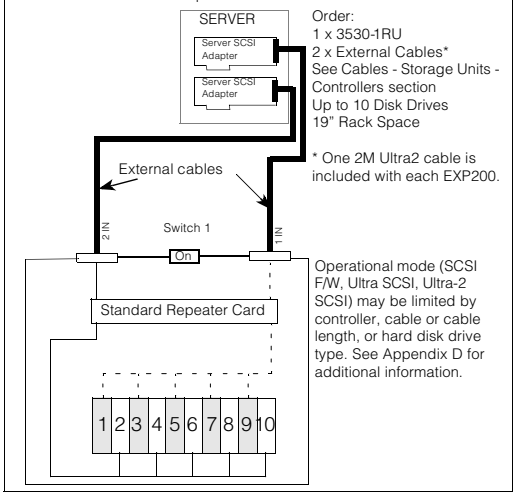


Order:
1 x 3530-1RU
1 x External Cable*
See Cables - Storage Units - Controllers section
Up to 10 Disk Drives
19" Rack Space
* One 2M Ultra2 cable is included with each EXP200.

Operational mode (SCSI F/W, Ultra SCSI, Ultra2 SCSI) may be limited by controller, cable or cable length. See Appendix D for additional information.

Netfinity EXP200 Two Independent SCSI Buses

To configure as two independent 5 drive SCSI channels, attach one external cable from the SCSI adapter to the SCSI bus 1 IN connector in the EXP200. Attach a second External SCSI cable from another SCSI adapter, in the same or separate server, to the 2 IN connector in the unit. Set switch 1 to "On" position.



Order:
1 x 3530-1RU
2 x External Cables*
See Cables - Storage Units - Controllers section
Up to 10 Disk Drives
19" Rack Space

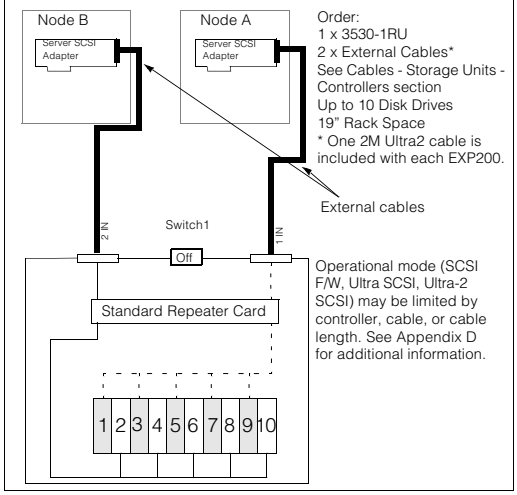
* One 2M Ultra2 cable is included with each EXP200.

Operational mode (SCSI F/W, Ultra SCSI, Ultra-2 SCSI) may be limited by controller, cable or cable length, or hard disk drive type. See Appendix D for additional information.

Netfinity EXP200 One Independent SCSI Bus

High Availability Configuration

To configure a single 10 drive SCSI channel for clustering, attach one external cable from the SCSI adapter in Node A to the 1 IN connector in the EXP200. Connect a second external cable to a SCSI adapter in Node B and to the 2 IN connector in the EXP200.



Order:
1 x 3530-1RU
2 x External Cables*
See Cables - Storage Units - Controllers section
Up to 10 Disk Drives
19" Rack Space
* One 2M Ultra2 cable is included with each EXP200.

Operational mode (SCSI F/W, Ultra SCSI, Ultra-2 SCSI) may be limited by controller, cable, or cable length. See Appendix D for additional information.

IBM Netfinity EXP300 (35311RU) Configurator

Netfinity EXP300 Hard Disk Drive (HDD) Storage

Total Int. Storage[1]	7200RPM Hard Disk Drives (HDDs)			10,000RPM Hard Disk Drives (HDDs)		
	9.1 GB (P/N 36L9744 or P/N 37L7201)[2]	18.2 GB (P/N 36L9745 or P/N 37L7202)[2]	36.4 GB (P/N 37L7203)	9.1 GB (P/N 36L9748 or P/N 37L7204)[2]	18.2 GB (P/N 36L9749 or P/N 37L7205)[2]	36.4 GB (P/N 37L7206)
0 GB	Standard on Base Models			Standard on Base Models		
18.2 GB	2	1	-	2	1	-
36.4 GB	4	2	1	4	2	1
54.6 GB	6	3	-	6	3	-
72.8 GB	8	4	2	8	4	2
91 GB	10	5	-	10	5	-
109.2 GB	12	6	3	12	6	3
127.4 GB	14	7	-	14	7	-
145.6GB	-	8	4	-	8	4
182 GB	-	10	5	-	10	5
218.4 GB	-	12	6	-	12	6
254.8 GB	-	14	7	-	14	7
291.2 GB	-	-	8	-	-	8
364.0 GB	-	-	10	-	-	10
436.8 GB	-	-	12	-	-	12
509.6 GB (max.)	-	-	14	-	-	14

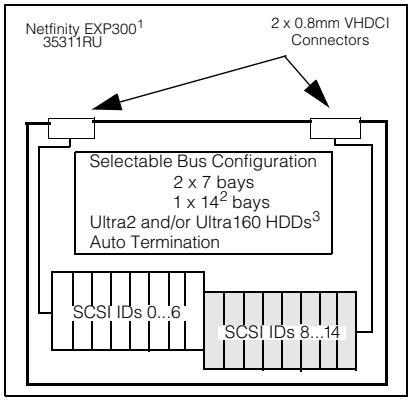
This table does not represent all possible hard drive configurations.
1. Select a total storage row then select the quantity of HDDs from a column corresponding to the hard disk drive of choice. Total Internal Storage listed is within +/- 0.2 GB unless otherwise noted.
2. When combined with a ServeRAID-4x controller, Ultra2 and Ultra160 HDD's may be mixed on the same bus and operate up to their maximum respective speeds.

SCSI ID	Form Factor	Height	Front Access	Usage
0...6	HS	SL	Yes	open
8...14	HS	SL	Yes	open

	Maximum MB/s	
Cable Length (Meters	Ultra2 Controller	Ultra160 Controller
2	80	160
4.2	80	160
20	80	160

Part Number	Description	RPM	Height	Bays Supported[1]	Max. Qty.
	Ultra2 Hard Disk Drives (HDD)[1]				
36L9744	Netfinity 9.1 GB Wide Ultra2 SCSI Hot-Swap SL HDD	7200	SL	1...14	14[3]
36L9745	Netfinity 18.2 GB Wide Ultra2 SCSI Hot-Swap SL HDD	7200	SL	1...14	14[3]
36L9748	Netfinity 9.1 GB 10K-3 Wide Ultra2 SCSI Hot-Swap SL HDD	10,000	SL	1...14	14[3]
36L9749	Netfinity 18.2 GB 10K-3 Wide Ultra2 SCSI Hot-Swap SL HDD	10,000	SL	1...14	14[3]
	Ultra 160 Hard Disk Drives (HDD)[2]	**RPM**	**Height**	**Bays Supported**	
37L7201	Netfinity 9.1 GB Wide Ultra2 SCSI Hot-Swap SL HDD	7200	SL	1...14	14[3]
37L7202	Netfinity 18.2 GB Ultra160 SCSI Hot-Swap SL HDD	7200	SL	1...14	14[3]
37L7203	Netfinity 36.4 GB Ultra160 SCSI Hot-Swap SL HDD[5]	7200	SL	1...14	14[3]
37L7204	Netfinity 9.1 GB 10K-4 Ultra160 SCSI Hot-Swap SL HDD[6]	10,000	SL	1...14	14[3]

1. The EXP300 ships with a single Ultra2 SCSI cable similar to Netfinity 2M Ultra2 SCSI Cable (P/N 03K9310).



1. Housed in a 19" rack mountable drawer and ships standard with redundant 500 W hot-swap power supplies, two power cords and a single 2M Ultra2 SCSI cable capable of supporting Ultra160 speeds.
2. Twintailing reduces the maximum number of HDDs on a single bus to 13.
3. When combined with a ServeRAID-4x controller, Ultra2 and Ultra160 HDDs may be mixed on the same bus and operate at up to their maximum respective speeds.

Requires IBM Netfinity Enterprise Rack (930842P) or Expansion Cabinet (930842X), Rack (9306900), NetBAY22 (9306200), NetBAY3 (10L6912), NetBAY3E (36L9701) or Rack-to-Tower Conversion Kit (09N7296).

External Storage Expansion Units require storage controllers and external cables. Select a supported controller from the system configurator and cables from Appendix D: Cables-Storage Units-Controllers.

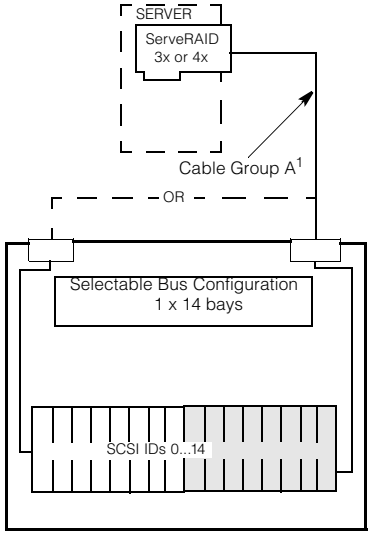
37L7205	Netfinity 18.2 GB 10K-4 Ultra160 SCSI Hot-Swap SL HDD[6]	10,000	SL	1…14	14[3]
37L7206	Netfinity 36.4 GB 10K-4 Ultra160 SCSI Hot-Swap SL HDD[6]	10,000	SL	1…14	14[3]

External Storage Expansion Units		**Form Factor**
35311RU	Netfinity EXP300 Storage Expansion Unit[4, 9]	Rack (3U)
09N7296	Netfinity EXP300 Rack-to-Tower Conversion Kit	-

1. Netfinity EXP300 Storage Expansion Unit ships with 14 slim-line hot-swap bays which can be configured as a single bus, twoi independant buses or a twintailed single bus.
2. When combined with a ServeRAID-4x controller, Ultra2 and Ultra160 HDDs may be mixed on the same bus and operate at up to their maximum respective speeds.
3.Twintailing reduces the maximum number of HDDs on a single bus to 13.
4. Netfinity EXP300 includes a single 2 M Ultra2 SCSI cable and dual hot-swap 500W redundant power supplies, each with its own power cord.
5. Planned availability of June 1, 2000.
6. Planned availablilty of June 30, 2000.

Cables and Controllers:
See Appendix D: Cables - Storage Units - Controllers

Netfinity EXP300 One Independent SCSI Bus

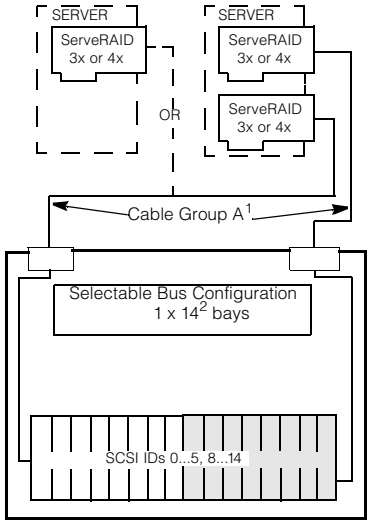


Order:
- 1 x 35311RU
- 1 x External Cable from Group A[1]
- Up to 14 Ultra2 and/or Ultra160 HDDs

1. One 2 M Ultra2 cable is included with each EXP300. If a longer cable is desired, select one from cable droup A.

Netfinity EXP300 One Independent Twintail SCSI Bus High Availability Configuration

To configure as one independent twintailed 13 bay SCSI bus, attach two external cables from two ServeRAID adapters, in the same or separate servers, to the two external ports of the EXP300. The EXP300 must be set for 1 x 14[2] bays.

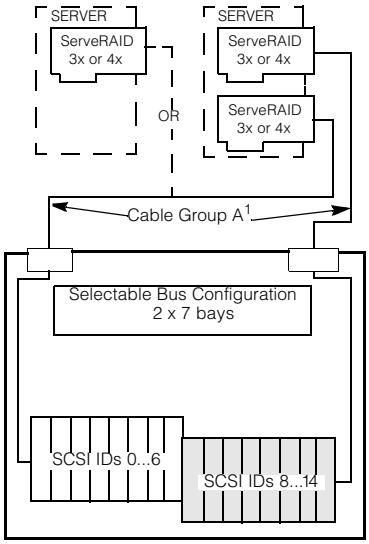


Order:
- 1 x 35311RU
- 2 x External Cables from Group A[1]
- Up to 13 Ultra2 and/or Ultra160 HDDs

1. One 2 M Ultra2 cable is included with each EXP300. If a longer cable is desired, select one from cable droup A.
2. Twintailing reduces the maximum number of HDDs on a single bus to 13.

Netfinity EXP300 Two Independent SCSI Buses

To configure as two independent 7 bay SCSI buses, attach two external cables from two ServeRAID adapters, in the same or separate servers, to the two external ports of the EXP300. The EXP300 must be set for 2 x 7 bays.



Order:
- 1 x 35311RU
- 2 x External Cables from Group A[1]
- Up to 14 Ultra2 and/or Ultra160 HDDs

1. One 2 M Ultra2 cable is included with each EXP300. If a longer cable is desired, select one from cable droup A.

IBM Netfinity EXP500 (35601RU) Configurator

Netfinity FAStT EXP500 Storage Expansion

Total Internal Storage[1]	10,000 RPM Hard Disk Drives (HDDs)		
	9.1 GB (P/N 37L6209)	18.2 GB (P/N 37L6210)	36.4 GB (P/N 37L6211)
0 GB	Standard on all Base Models		
18.2 GB	2	1	-
36.2 GB	4	2	1
54.6 GB	6	3	-
72.8 GB	8	4	2
91.0 GB	10	5	-
109.2 GB	-	6	3
145.6 GB	-	8	4
182..0 GB	-	10	5
218.4 GB	-	-	6
254.8 GB	-	-	7
291.2 GB	-	-	8
327.6 GB	-	-	9
364 (max)	-	-	10

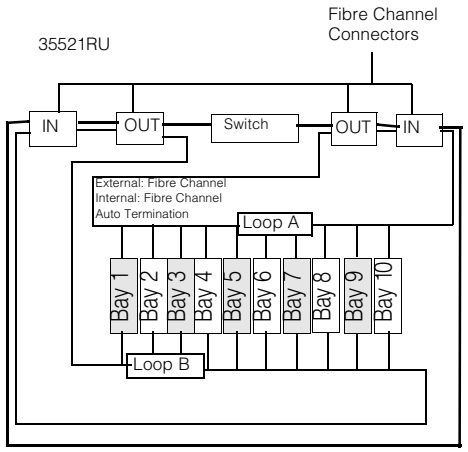
This table does not represent all valid hard drive configurations.
1. Select a total storage row and then select the quantity of HDDs from a column corresponding to the hard disk drive of choice. Total Internal Storage listed is within +- 0.2 GB unless otherwise noted.

Part Number	Description	RPM	Height	Bays Supported	Max. Qty Supported
37L6209	Netfinity 9.1 GB 10K-3 FC Hot-Swap HDD	10,000	SL	1…10	10
37L6210	Netfinity 18.2 GB 10K-3 FC Hot-Swap HDD	10,000	SL	1…10	10
37L6211	Netfinity 36.4 GB 10K-3 FC Hot-Swap HDD	10,000	HH	1…10	10

External Storage Expansion Units		Form Factor
35601RU	Netfinity FAStT EXP500 Storage Expansion Unit[1]	Rack (3U)

1. The EXP500 FC includes two hot-swap, 350 W auto-ranging redundant power supplies, each with its own power cord.

Netfinity FAStT EXP500[1]



1. Housed in a 19" Rack mountable drawer and ships standard with redundant power supplies and two power cables requiring separate power sources.

Requires IBM Netfinity Rack (9306900), Netfinity NetBAY22 (9306200), NetBAY3 (10L6912) or industry standard 19" rack, EIA-310D, with a minimum depth of 24" (711.2 mm).

External Storage Expansion Units require storage controllers and external cables. Select a supported controller from the system configurator and cables from Appendix D: Cables-Storage-Units-Controllers.

IBM Netfinity Fibre Array Solutions

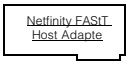
Part Number	Description	Note	Ports[1, 2]	00N6881[3]	01K7297[3]	01K7296[3]	00N6882	35521RU	35261RU[3]	35601RU	2109S08	2109S16	35231RU	35341RU
00N6881	Netfinity FAStT Host Adapter	3	1/0/0	-	-	A	B	B[4]	A	-	C	C	C	D
01K7297	Netfinity Fibre Channel PCI Adapter	3	1/0/0	-	-	A	B	B[4]	A	-	C	C	C	D
01K7296	Netfinity Fibre Channel Failsafe RAID Controller	2	1/0/0	A	A	-	-	-	E	-	C	C	C[10]	D
00N6882	Netfinity FAStT500 Mini Hub		0/0/2	B	B	-	F[5]	E[4]	-	F[6]	F[5]	F[5]	-	G[5]
35521RU	Netfinity FAStT500 RAID Controller		0/0/16	B[4]	B[4]	-[4]	E[4]	-	-	H[43]	F[4]	F[4]	-	F[4]
35261RU	Netfinity Fibre Channel RAID Controller Unit	3	1/0/0	A	A	E	-	-	-	-	B	B	C[10]	B
35601RU	Netfinity FAStT EXP500 Storage Expansion Unit		0/0/4	-	-	-	F[6]	H[4]	-	F	-	-	-	-
2109S08	IBM SAN Fibre Channel Switch, 8-Port		0/4/4	C	C	C	F[5]	F[4]	B	-	I	I	I[8]	F
2109S16	IBM SAN Fibre Channel Switch, 16-Port		0/4/12	C	C	C	F[5]	F[4]	B	-	I	I	I[8]	F
35231RU	Netfinity Fibre Channel Hub	10, 11	0/4/7	C	C	C[10]	-	-	C[10]	-	-	-	I[9]	F
35341RU	IBM SAN Fibre Channel Managed Hub	7, 10	7/0/1	D	D	D	G[5]	F[4]	B	-	F[8]	F[8]	F	F
03K9307	Netfinity Fibre Channel Long-Wave GBIC		-	-	-	-	E	-	-	E	E	E	E	E
03K9308	Netfinity Fibre Channel Short-Wave GBIC		-	-	-	-	E	-	-	E	E	E	E	E

For the latest product & technical information, refer to the Information Sources on pages 1 and 2.

A: A short-wave cable is required for this connection. A cable from Cable Group D is required.
B: One of these devices has an integrated optical port but the other requires an optional Short-Wave GBIC (P/N 03K9308) to complete the connection. A cable form Cable Group D is required.
C: One of these devices has an integrated optical port but the other requires an optional or available Short-Wave GBIC (P/N 03K9308) to complete the connection. A cable from Cable Group D is required.
D: Both devices have integrated short-wave optical ports. The IBM SAN Managed Hub (P/N 35341RU) has a single GBIC port that could be configuredfor short-wave functionality with an optional short-wave GBIC (P/N 03K9308).
E: This is a hardware connection.
F: This device supports the use of Short-Wave (P/N 03K9308) and Long-Wave (P/N 03K9307) GBICs. Both devices must have the same type of GBIC installed for a valid connection. A cable from Cable Group D or customer-supplied long-wave cable is required.
G: The Netfinity FAStT500 Mini Hub (P/N 00N6882) can connect to the IBM SAN Fibre Channel Managed Hub (P/N 35341RU) via optional short-wave or long-wave GBICs. Short-wave connections from the Mini Hub may connect to either an integrated short-wave optical port or an optional short-wave GBIC (P/N 03K9308) on the IBM SAN Fibre Channel Managed Hub. Long-wave connections from the Mini Hub may connect to an optional Long-Wave GBIC (P/N 03K9307) installed in the IBM SAN Fibre Channel Managed Hub.
H: Connections to the Netfinity FAStT500 RAID Controller are made through optional Short-Wave (P/N 03K9308) or Long-Wave (P/N 03K9307) GBICs installed in an available or optional Netfinity FAStT500 Mini Hub (P/N 00N6882).
I: This device supports the use of available (4 included) or optional Short-Wave (P/N 03K9308) and optional Long-Wave (03K9307) GBICs. Both devices must have the same type of GBIC installed for a valid connection. A cable from Cable Group D or customer-supplied long-wave cable is required.

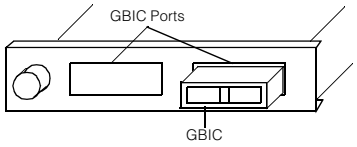
1. The number of optical ports on a device displayed as: Integrated Ports/GBIC Ports with installed short-wave GBICs/Available GBIC Ports. Standard GBICs and optical ports are always short-wave; i.e., the 2109S16 is displayed as 0/4/12. This would mean that the device has 0 integrated optical ports, 4 installed short-wave GBICs and 12 available or open GBIC ports that can be configured as either short-wave (P/N 03K9307) or long-wave (P/N 03K9308) with optical GBICs.
2. Standard GBICs and integrated optical ports are always short-wave.
3. Device has an integrated short-wave optical port. Does not require an optional GBIC.
4. Connection requires an optional GBIC installed in an available or optional Netfinity FAStT500 Mini Hub (P/N 00N6882). Netfinity FAStT500 RAID Controller (P/N 35521RU) uses up to 4 Mini Hubs (2 standard) with GBICs to provide up to 8 connections for host devices and up to 4 Mini Hubs (2 standard) with GBICs to provide up to 8 connections for storage devices.
5. This device and the Netfinity FAStT500 Mini Hub (P/N 00N6882) can not be connected when the Mini Hub is installed in the Storage side of the Netfinity FAStT500 RAID Controller (P/N 35521RU).
6. This device and the Netfinity FAStT500 Mini Hub (P/N 00N6882) can not be connected when the Mini Hub is installed in the Host side of the Netfinity FAStT500 RAID Controller (P/N 35521RU).
7. The IBM SAN Fibre Channel Managed Hub has 7 integrated, short-wave optical ports. The eighth port is a GBIC slot that can be configured either as short-wave or long-wave.
8. In configurations with the IBM Fibre Channel Switch (P/N 2109S08/S16), all host systems must be attached to the FC Switch. Only storage systems can be attached to the SAN Fibre Channel Managed Hub.
9. No more than two Netfinity Fibre Channel Hubs (P/N 35231RU) should be connected together.
10. For optimum performance, no more than two RAID Controller Units (P/N 35261RU) should be attached to a single hub.
11. Not supported with the Netfinity FAStT500 RAID Controller (P/N 35521RU).

Netfinity FAStT Host Adapter
00N6881



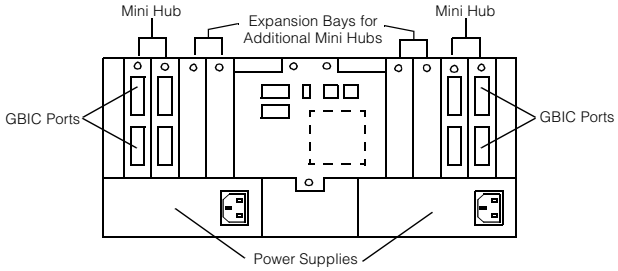
- PCI to FCAL 66 MHz 64-bit with 32-bit slot compatibility
- Supports FC to SCSI and IP Protocols
- Supports FC to arbitrated loop public loop profile

Netfinity FAStT500 Mini Hub
00N6882



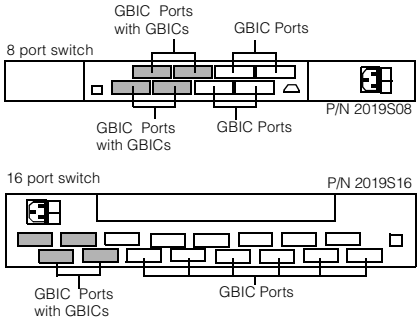
- Provides additional connections to the Netfinity FAStT500 RAID Controller - supports complex clustering or advanced storage applications.

Netfinity FAStT500 RAID Controller Unit
35521RU



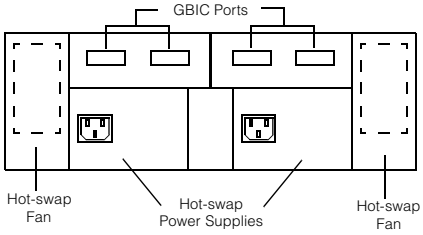
- Dual high-performance, RAID controller cards-supports up to 100 MB/sec data transfer rate per controller.
- Two 175 W auto-ranging, hot-swap, redundant power supplies.
- Attach directly to Netfinity Fibre Channel PCI Adapter(s) (P/N 01K7297) or indirectly through SAN Fibre Channel Managed Hub (P/N 35341RU) using cables from cable group D.
- Height is 4U (1 U = 1,75 in. or 44.45 mm)
- Requires Netfinity Enterprise Rack or Expansion Cabinet, Netfinity Rack, Netfinity NetBAY22 or 19-inch EIA-D Industry-Standard Rack. Mounting rails are included with the controller.

IBM SAN Fibre Channel Switch, 8 and 16 Ports
2109S08/S16



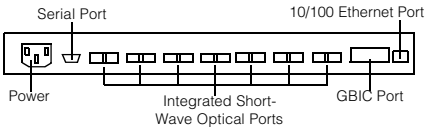
- Each port delivers up to 100 MB/sec, full-duplex data transfer.
- Comes with 4 Short-Wave GBICs installed.
- Embedded Web browser configuration, management and service.
- Support for Public Fibre Channel Arbitrated Loops.
- Optional power supply (P/N 09L5403) available.

Netfinity FAStT EXP500 Storage Expansion Unit
35601RU



- Two hot-swap, 350 W auto-ranging, redundant power supplies.
- Redundant fans - two hot-swap, dual-fan units.
- LED indicators on all critical components warn of faults, over temperature, and other abnormalities.
- Ten drive bays - supports slim-high or half-high Fibre Channel hot-swap hard disk drives.
- Height is 3U (1 U = 1,75 in. or 44.45 mm)
- Requires Netfinity Enterprise Rack or Expansion Cabinet, Netfinity Rack, Netfinity NetBAY22 or 19-inch EIA-D Industry-Standard Rack. Mounting rails are included.

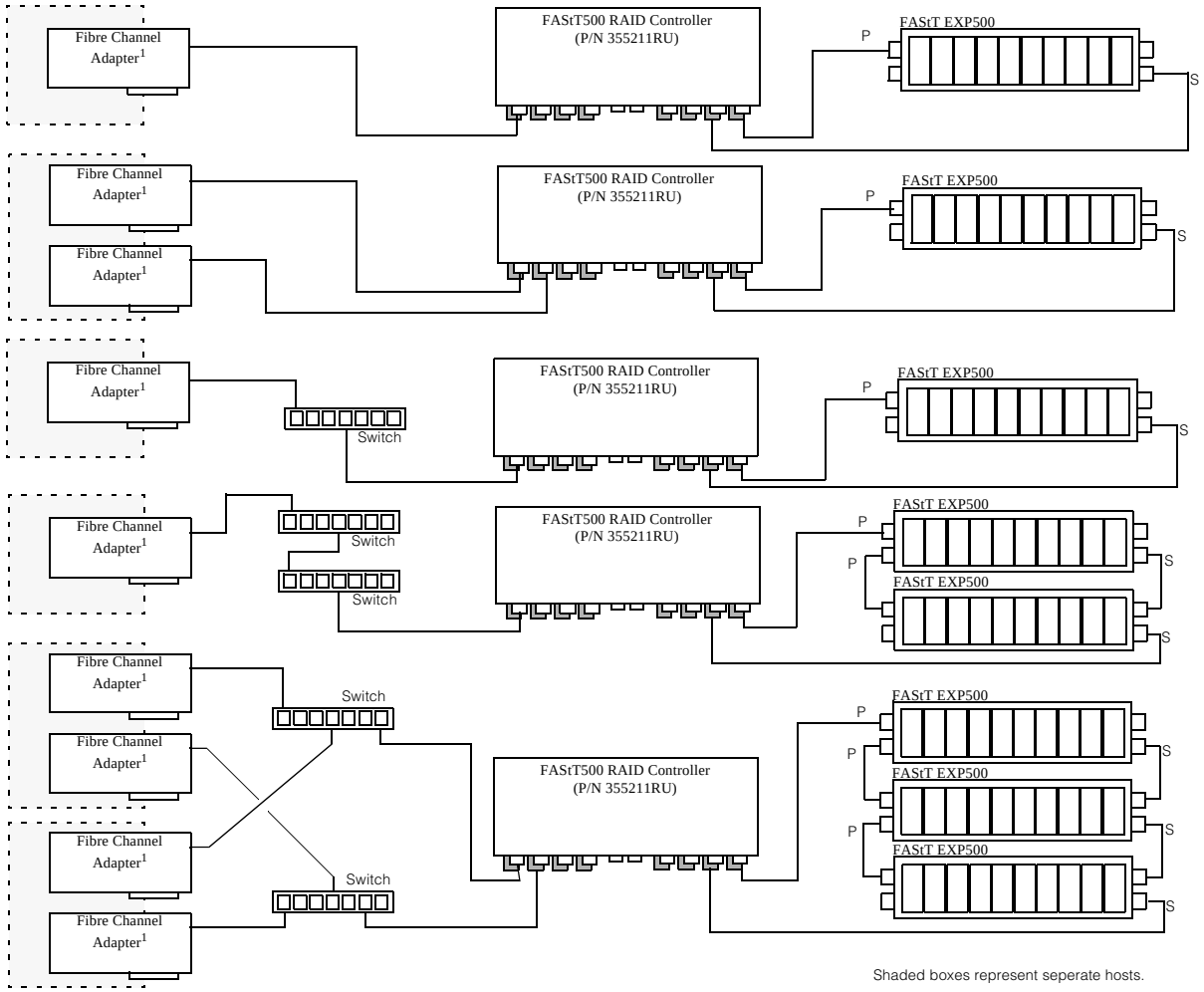
IBM SAN Fibre Channel Managed Hub
35341RU



- High-speed performance utilizing nonblocking switch-based technology.
- Simultaneous 100 MB/sec full duplex data transfers across all ports.
- Eight ports, one that is configurable with either a short-wave or long-wave optical GBIC.
- Support for industry standard MIBs enabling standard SNMP management.

Fibre / Fibre Configuration Examples - Cable Group ()

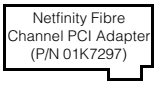
Note: The following sample configurations are for illustration only and may not be suitable for any specific customer installation. Contact your IBM Business Partner or IBM Marketing Representative for assistance with your specific configuration requirements.



1. FAStT Host Adapter (P/N 00N6881) supports shortwave connections only.

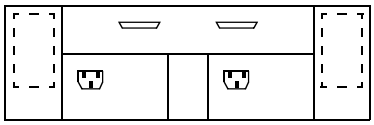
P = Primary path, S = Secondary/Redundant path
All storage connections require a secondary/redundant pathway in order to function properly.

Netfinity Fibre Channel PCI Adapter (P/N 01K7297)



- PCI to FCAL 64/32-bit host adapter
- Supported Attachments (use cable group D):
  - Netfinity Fibre Channel Hub (P/N 35231RU), requires available short-wave GBIC in hub
  - Netfinity Fibre Channel RAID Controller Unit 35261RU
  - Netfinity Fibre Channel Failsafe RAID Controller (P/N 01K7296)

Netfinity EXP200 Storage Expansion Unit (P/N 35301RU)

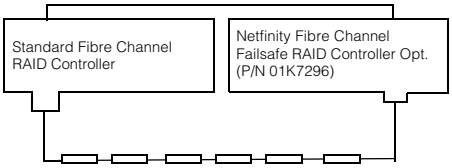


- Ten half-high, or slim-line, hot-swap HDD bays
- Hot-swap 350 W power supply and fans
- Optional hot-plug Netfinity EXP200 350 W Redundant Power Supply

Supported Cable Groups	
Cable Group A (0.8 mm to 0.8 mm)	
03K9310	Netfinity 2 M Ultra2 SCSI Cable
03K9311	Netfinity 4.2 M Ultra2 SCSI Cable
37L7101	Netfinity 20 M Ultra2 SCSI Cable
Cable Group D (Short-Wave Fibre)	
36L9973	Netfinity Fibre Channel 1 M Cable
03K9306	Netfinity Fibre Channel 5 M Cable
03K9305	Netfinity Fibre Channel 25 M Cable
Customer supplied short-wave cable of up to 500 meters (0.31 miles)	
Cable Group E (Long-Wave Fibre)	
Customer supplied long-wave cable of up to 10 kilometers (6.2 miles)	
GBIC	
03K9308	Netfinity Fibre Channel Short-Wave GBIC[1]
03K9307	Netfinity Fibre Channel Long-Wave GBIC

1. Four Netfinity Fibre Channel Short-Wave GBIC's (P/N 03K9308) are included with SAN Fibre Channel Switches (P/Ns 2109508 and 2109516).

Netfinity Fibre Channel RAID Controller Unit (P/N 35261RU)



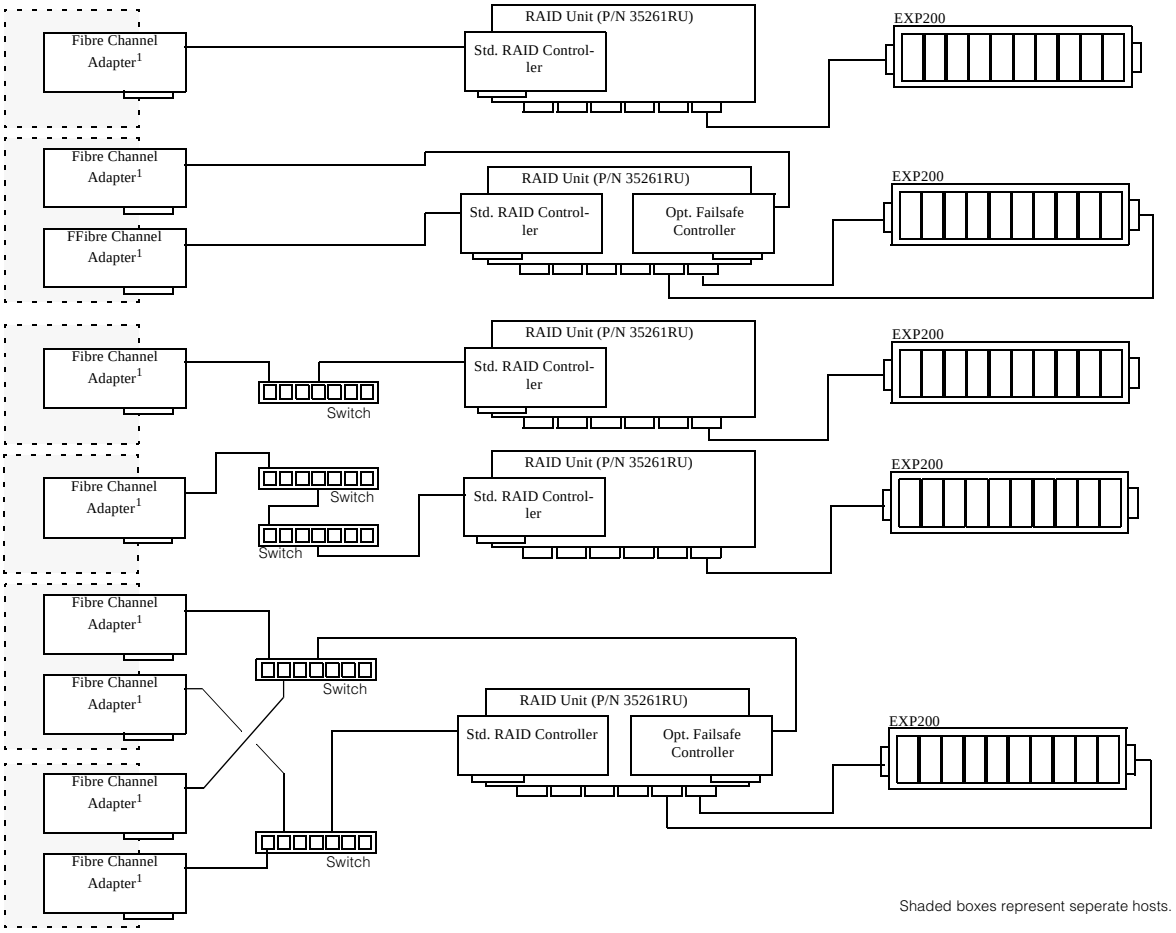
- Contains a single Short-Wave Fibre Connection (use cable group D) and six female 0.8 mm Very High Density Connection Interface (VHDCI) SCSI connectors (EXP15 - use cable group A)
- Hot-Swap Redundant Fans and Power Supplies
- Optional Netfinity Fibre Channel Failsafe RAID Controller (P/N 01K7296) provides a redundant RAID controller and second Short-Wave Fibre Connection (use cable group D)
- Attach directly to Netfinity Fibre Channel PCI Adapter(s) (P/N 01K7297) or indirectly through Netfinity Fibre Channel Hub (P/N 35231RU) using cables from cable group D
- Height is 4 U (1 U=1.75 in. or 44.45 mm)
- Requires Netfinity Enterprise Rack or Expansion Cabinet, Netfinity Rack, Netfinity NetBAY22 or 19-inch EIA-D Industry-Standard Rack. Mounting rails are included with the controller.
- For optimum performance no more than two RAID controller units (P/N 35261RU) should be attached to a single hub

Netfinity Fibre Channel Hub 35231RU

- Seven-port Fibre Channel Hub chassis
- Includes four standard Netfinity Fibre Channel Short-Wave GBIC's (GigaBit Interface Converters)
- GBIC's supported
  - Netfinity Fibre Channel Short-Wave GBIC (P/N 03K9308) which supports Cable Group D
  - Netfinity Fibre Channel Long-Wave GBIC (P/N 03K9307) which supports Cable Group E
- Supported Attachments (up to seven, each requires a GBIC):
  - Netfinity Fibre Channel PCI Adapter (P/N 01K7297), which requires cable group D with short-wave GBIC
  - Second Netfinity Fibre Channel Hub (P/N 35231RU) requires cable group D or E with corresponding GBIC
  - Netfinity Fibre Channel RAID Controller Unit 35261RU requires cable group D and short-wave GBIC for each hub.
- Height is 1 U (1 U = 1.75 in or 44.45 mm). Two units can be mounted side-by-side in a 1 U space.
- Requires Netfinity Enterprise Rack or Expansion Cabinet, Netfinity Rack, NetBAY22 or 19-inch EIA-D Industry-Standard Rack. Mounting hardware is included with the hub.
- For optimum performance no more than two RAID controller units (P/N 35261RU) should be attached to a single hub (P/N 35231RU)

Fibre / SCSI Configuration Examples- Cable Group ()

Note: The following sample configurations are for illustration only and may not be suitable for any specific customer installation. Contact your IBM Business Partner or IBM Marketing Representative for assistance with your specific configuration requirements.

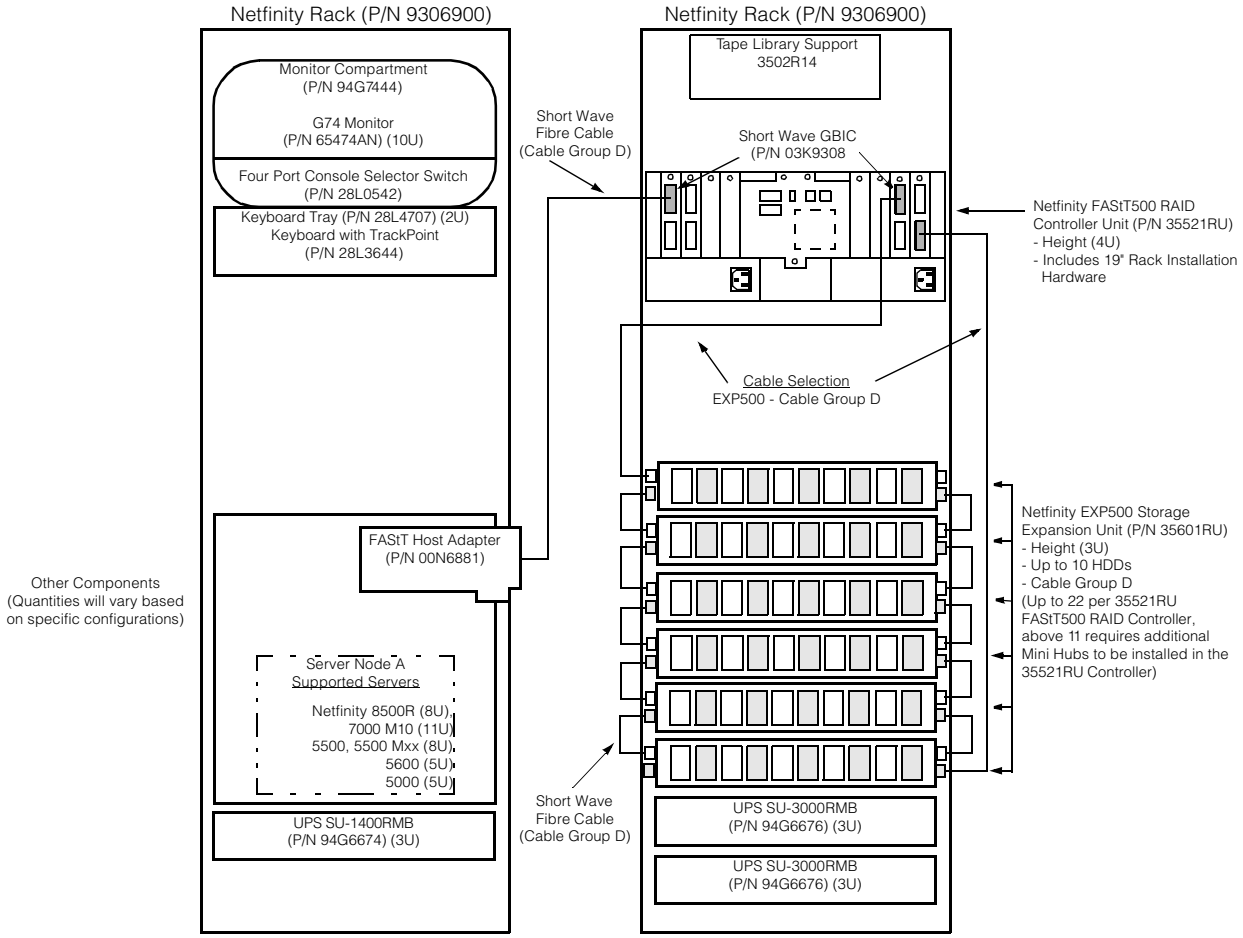


1. Configured as two independent 5 HDD buses.

IBM Netfinity Fibre Array Solutions

Note: The following sample configurations are for illustration only and may not be suitable for any specific customer installation. Contact your IBM Business Partner or IBM Marketing Representative for assistance with your specific configuration requirements

High-speed single-node Netfinity Fibre Channel Storage configuration offering performance, bandwidth & capacity



Connector Types
68-pin - High Density Connector
0.8 mm - Very High Density Connection Interface VHDCI

Cable Group A (0.8 mm to 0.8 mm)
03K9310 - Netfinity 2 M Ultra2 SCSI Cable
03K9311 - Netfinity 4.2 M Ultra2 SCSI Cable
37L7101- Netfinity 20 M Ultra2 SCSI Cable

Cable Group D (Short-Wave Fibre)
36L9973 - Netfinity Fibre Channel 1 M Cable
03K9306 - Netfinity Fibre Channel 5 M Cable
03K9305 - Netfinity Fibre Channel 25 M Cable
Customer supplied short-wave cable of up to 500 meters (0.31 miles)

Cable Group E (Long-Wave Fibre)
Customer supplied long-wave cable of up to 10 kilometers (6.2 miles)

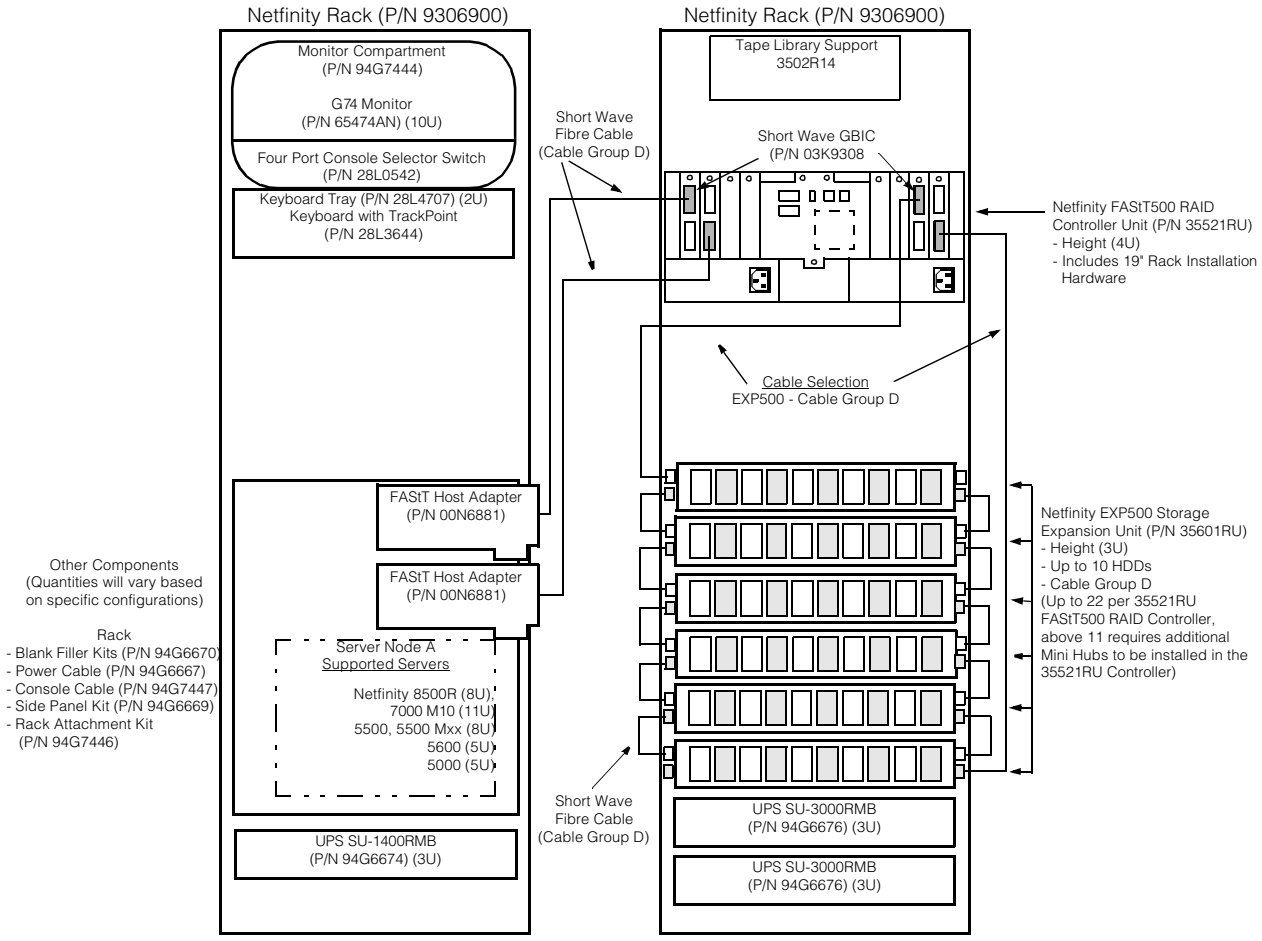
GBIC
03K9308 - Netfinity Fibre Channel Short-Wave GBIC[1]
03K9307 - Netfinity Fibre Channel Long-Wave GBIC

1. Four Netfinity Fibre channel Short-Wave GBIC's (P/N 03K9308) are included with SAN Fibre Channel Managed Hub (P/N 35341RU)

IBM Netfinity Fibre Array Solutions

Note: The following sample configurations are for illustration only and may not be suitable for any specific customer installation. Contact your IBM Business Partner or IBM Marketing Representative for assistance with your specific configuration requirements

High-speed single-node Netfinity Fibre Channel Storage configuration with Microsoft NT failover support and RAID redundancy for availability, performance, capacity



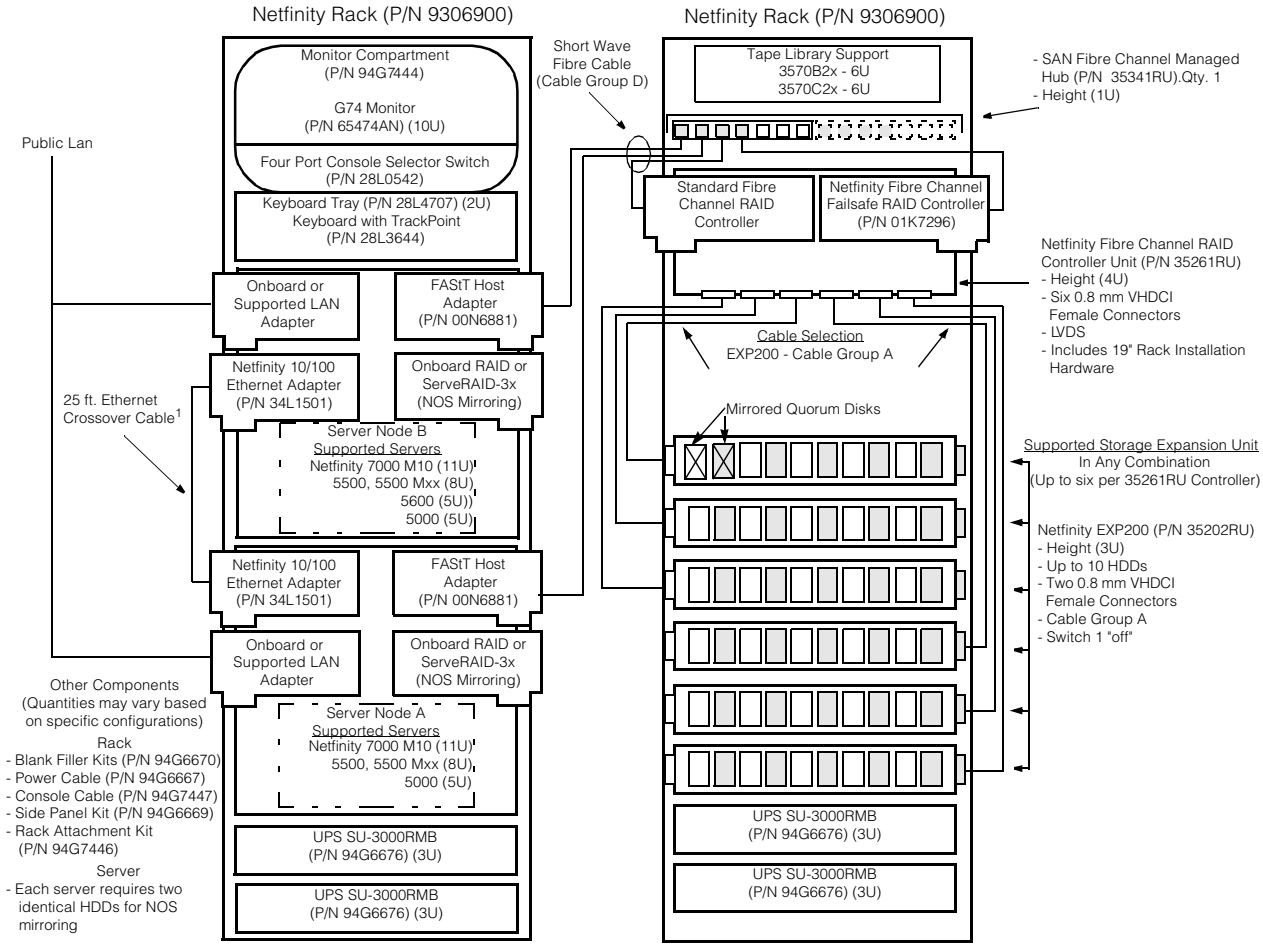
Connector Types 68-pin - High Density Connector 0.8 mm - Very High Density Connection Interface VHDCI Cable Group A (0.8 mm to 0.8 mm) 03K9310 - Netfinity 2 M Ultra2 SCSI Cable 03K9311 - Netfinity 4.2 M Ultra2 SCSI Cable 37L7101 - Netfinity 20 M Ultra2 SCSI Cable	Cable Group D (Short-Wave Fibre) 36L9973 - Netfinity Fibre Channel 1 M Cable 03K9306 - Netfinity Fibre Channel 5 M Cable 03K9305 - Netfinity Fibre Channel 25 M Cable Customer supplied short-wave cable of up to 500 meters (0.31 miles) Cable Group E (Long-Wave Fibre) Customer supplied long-wave cable of up to 10 kilometers (6.2 miles) GBIC 03K9308 - Netfinity Fibre Channel Short-Wave GBIC 03K9307 - Netfinity Fibre Channel Long-Wave GBIC 1. Four Netfinity Fibre channel Short-Wave GBIC's (P/N 03K9308) are included with SAN Fibre Channel Managed Hub (P/N 35341RU).

IBM Netfinity Fibre Array Solutions

Note: The following sample configurations are for illustration only and may not be suitable for any specific customer installation. Contact your IBM Business Partner or IBM Marketing Representative for assistance with your specific configuration requirements

Cluster Solution

High speed multiple node Microsoft Cluster Service (MSCS) and Netfinity Fibre Channel Storage configuration offering data protection and RAID redundancy.


Netfinity Rack (P/N 9306900)
Netfinity Rack (P/N 9306900)
Monitor Compartment (P/N 94G7444)
G74 Monitor (P/N 65474AN) (10U)
Four Port Console Selector Switch (P/N 28L0542)
Keyboard Tray (P/N 28L4707) (2U)
Keyboard with TrackPoint (P/N 28L3644)
Short Wave Fibre Cable (Cable Group D)
Tape Library Support 3570B2x - 6U 3570C2x - 6U
- SAN Fibre Channel Managed Hub (P/N 35341RU).Qty. 1
- Height (1U)
Public Lan
Standard Fibre Channel RAID Controller
Netfinity Fibre Channel Failsafe RAID Controller (P/N 01K7296)
Netfinity Fibre Channel RAID Controller Unit (P/N 35261RU)
- Height (4U)
- Six 0.8 mm VHDCI Female Connectors
- LVDS
- Includes 19" Rack Installation Hardware
Onboard or Supported LAN Adapter
FAStT Host Adapter (P/N 00N6881)
Cable Selection EXP200 - Cable Group A
Netfinity 10/100 Ethernet Adapter (P/N 34L1501)
Onboard RAID or ServeRAID-3x (NOS Mirroring)
25 ft. Ethernet Crossover Cable[1]
Mirrored Quorum Disks
Server Node B
Supported Servers
Netfinity 7000 M10 (11U)
5500, 5500 Mxx (8U)
5600 (5U))
5000 (5U)
Supported Storage Expansion Unit In Any Combination (Up to six per 35261RU Controller)
Netfinity EXP200 (P/N 35202RU)
- Height (3U)
- Up to 10 HDDs
- Two 0.8 mm VHDCI Female Connectors
- Cable Group A
- Switch 1 "off"
Netfinity 10/100 Ethernet Adapter (P/N 34L1501)
FAStT Host Adapter (P/N 00N6881)
Onboard or Supported LAN Adapter
Onboard RAID or ServeRAID-3x (NOS Mirroring)
Other Components (Quantities may vary based on specific configurations)
Rack
- Blank Filler Kits (P/N 94G6670)
- Power Cable (P/N 94G6667)
- Console Cable (P/N 94G7447)
- Side Panel Kit (P/N 94G6669)
- Rack Attachment Kit (P/N 94G7446)
Server
- Each server requires two identical HDDs for NOS mirroring
Server Node A
Supported Servers
Netfinity 7000 M10 (11U)
5500, 5500 Mxx (8U)
5000 (5U)
UPS SU-3000RMB (P/N 94G6676) (3U)
UPS SU-3000RMB (P/N 94G6676) (3U)
UPS SU-3000RMB (P/N 94G6676) (3U)
UPS SU-3000RMB (P/N 94G6676) (3U)

Connector Types
68-pin - High Density Connector
0.8 mm - Very High Density Connection Interface VHDCI

Cable Group A (0.8 mm to 0.8 mm)
03K9310 - Netfinity 2 M Ultra2 SCSI Cable
03K9311 - Netfinity 4.2 M Ultra2 SCSI Cable
37L7101 - Netfinity 20 M Ultra2 SCSI Cable

Cable Group D (Short-Wave Fibre)
36L9973 - Netfinity Fibre Channel 1 M Cable
03K9306 - Netfinity Fibre Channel 5 M Cable
03K9305 - Netfinity Fibre Channel 25 M Cable
Customer supplied short-wave cable of up to 500 meters (0.31 miles)

Cable Group E (Long-Wave Fibre)
Customer supplied long-wave cable of up to 10 kilometers (6.2 miles)

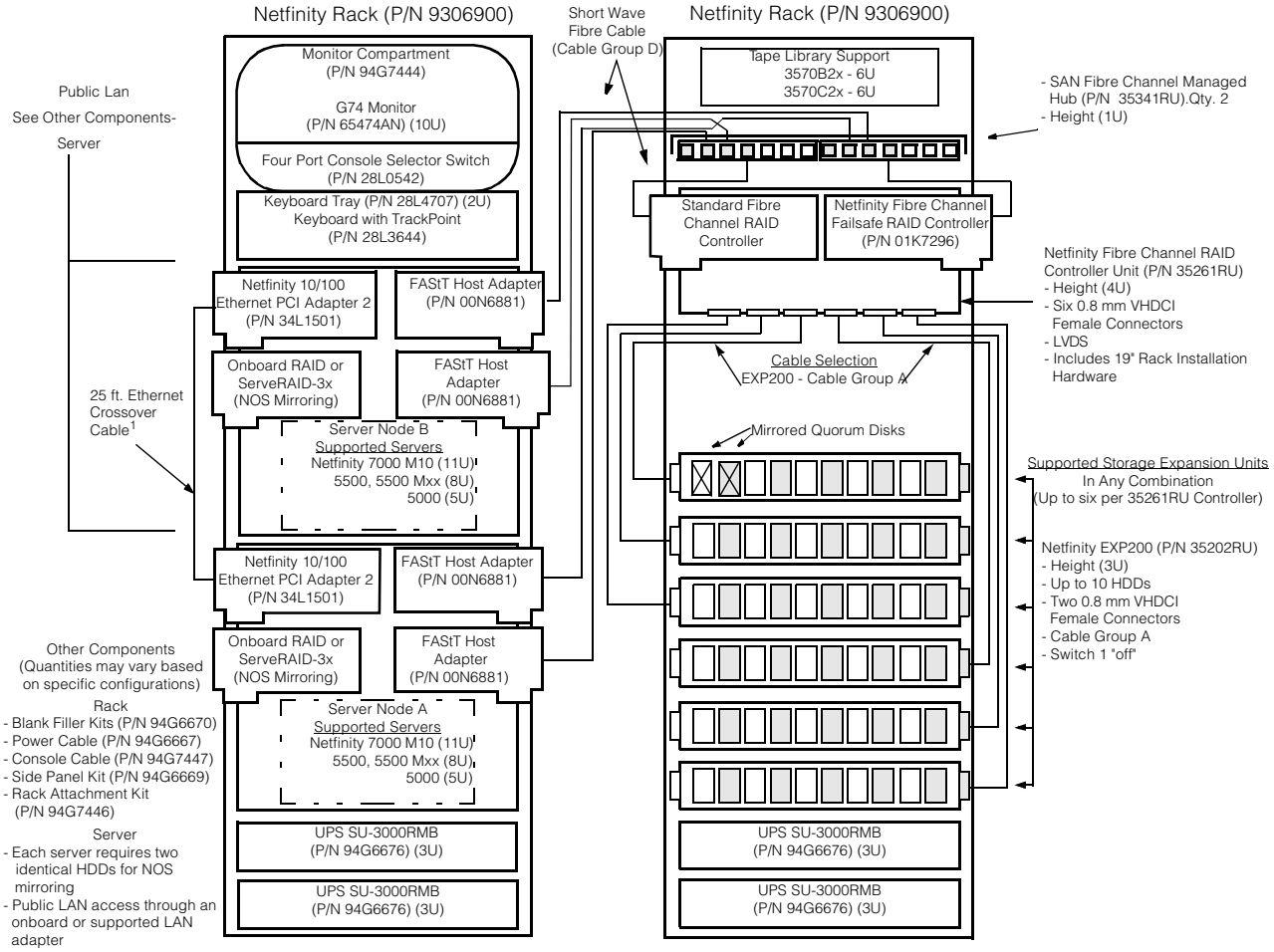
GBIC
03K9308 - Netfinity Fibre Channel Short-Wave GBIC[1]
03K9307 - Netfinity Fibre Channel Long-Wave GBIC

1. Microsoft Cluster Server (MSCS) requires a private interconnect between clustered nodes. A 25 ft. Ethernet crossover cable is shown but not available from IBM as a separate option. Contact your IBM Business Partner for assistance.

IBM Netfinity Fibre Array Solutions

Note: The following sample configurations are for illustration only and may not be suitable for any specific customer installation. Contact your IBM Business Partne or IBM Marketing Representative for assistance with your specific configuration requirements

Advanced high-speed high-availability multiple node Microsoft Cluster Service (MSCS) and fully redundant Netfinity Fibre Channel Storage configuration offering the highest levels of data protection and availability and access to data

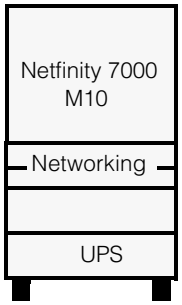

Netfinity Rack (P/N 9306900)
Short Wave Fibre Cable (Cable Group D)
Netfinity Rack (P/N 9306900)
Public Lan
See Other Components-Server
Monitor Compartment (P/N 94G7444)
G74 Monitor (P/N 65474AN) (10U)
Four Port Console Selector Switch (P/N 28L0542)
Keyboard Tray (P/N 28L4707) (2U)
Keyboard with TrackPoint (P/N 28L3644)
Netfinity 10/100 Ethernet PCI Adapter 2 (P/N 34L1501)
FAStT Host Adapter (P/N 00N6881)
Onboard RAID or ServeRAID-3x (NOS Mirroring)
FAStT Host Adapter (P/N 00N6881)
25 ft. Ethernet Crossover Cable[1]
Server Node B
Supported Servers
Netfinity 7000 M10 (11U)
5500, 5500 Mxx (8U)
5000 (5U)
Netfinity 10/100 Ethernet PCI Adapter 2 (P/N 34L1501)
FAStT Host Adapter (P/N 00N6881)
Onboard RAID or ServeRAID-3x (NOS Mirroring)
FAStT Host Adapter (P/N 00N6881)
Server Node A
Supported Servers
Netfinity 7000 M10 (11U)
5500, 5500 Mxx (8U)
5000 (5U)
UPS SU-3000RMB (P/N 94G6676) (3U)
UPS SU-3000RMB (P/N 94G6676) (3U)
Other Components (Quantities may vary based on specific configurations)
Rack
- Blank Filler Kits (P/N 94G6670)
- Power Cable (P/N 94G6667)
- Console Cable (P/N 94G7447)
- Side Panel Kit (P/N 94G6669)
- Rack Attachment Kit (P/N 94G7446)
Server
- Each server requires two identical HDDs for NOS mirroring
- Public LAN access through an onboard or supported LAN adapter
Tape Library Support
3570B2x - 6U
3570C2x - 6U
- SAN Fibre Channel Managed Hub (P/N 35341RU).Qty. 2
- Height (1U)
Standard Fibre Channel RAID Controller
Netfinity Fibre Channel Failsafe RAID Controller (P/N 01K7296)
Netfinity Fibre Channel RAID Controller Unit (P/N 35261RU)
- Height (4U)
- Six 0.8 mm VHDCI Female Connectors
- LVDS
- Includes 19" Rack Installation Hardware
Cable Selection
EXP200 - Cable Group A
Mirrored Quorum Disks
Supported Storage Expansion Units
In Any Combination
(Up to six per 35261RU Controller)
Netfinity EXP200 (P/N 35202RU)
- Height (3U)
- Up to 10 HDDs
- Two 0.8 mm VHDCI Female Connectors
- Cable Group A
- Switch 1 "off"
UPS SU-3000RMB (P/N 94G6676) (3U)
UPS SU-3000RMB (P/N 94G6676) (3U)

Connector Types 68-pin - High Density Connector 0.8 mm - Very High Density Connection Interface VHDCI	Cable Group D (Short-Wave Fibre) 36L9973 - Netfinity Fibre Channel 1 M Cable 03K9306 - Netfinity Fibre Channel 5 M Cable 03K9305 - Netfinity Fibre Channel 25 M Cable Customer supplied short-wave cable of up to 500 meters (0.31 miles)
Cable Group A (0.8 mm to 0.8 mm) 03K9310 - Netfinity 2 M Ultra2 SCSI Cable 03K9311 - Netfinity 4.2 M Ultra2 SCSI Cable 37L7101 - Netfinity 20 M Ultra2 SCSI Cable	Cable Group E (Long-Wave Fibre) Customer supplied long-wave cable of up to 10 kilometers (6.2 miles) GBIC 03K9308 - Netfinity Fibre Channel Short-Wave GBIC[1] 03K9307 - Netfinity Fibre Channel Long-Wave GBIC

1. Microsoft Cluster Server (MSCS) requires a private interconnect between clustered nodes. A 25 ft. Ethernet crossover cable is shown but not available from IBM as a separate option. Contact your IBM Business Partner for assistance.

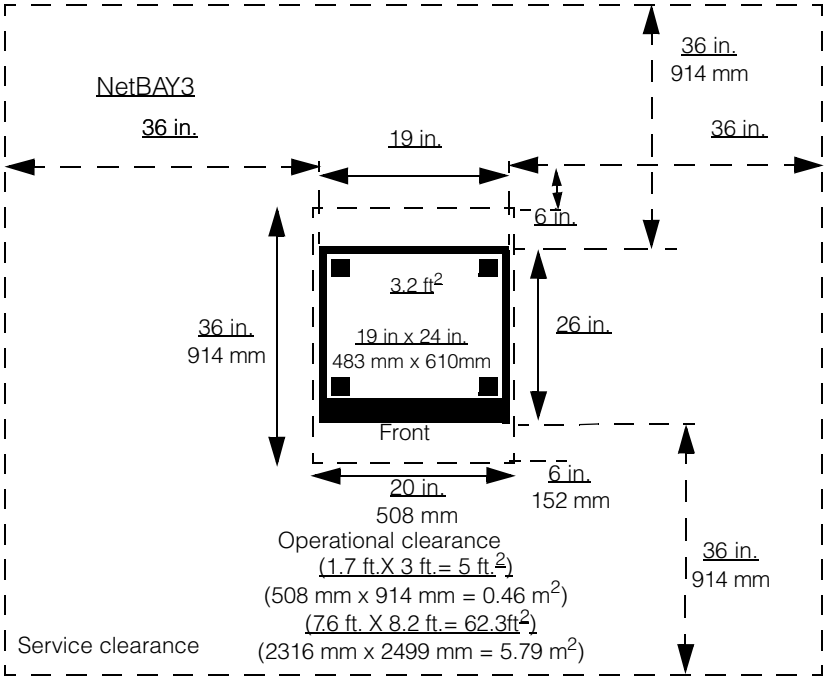
IBM Netfinity NetBAY3/NetBAY3E Stackable Enclosures

Sample Configuration



Installation Guidelines:

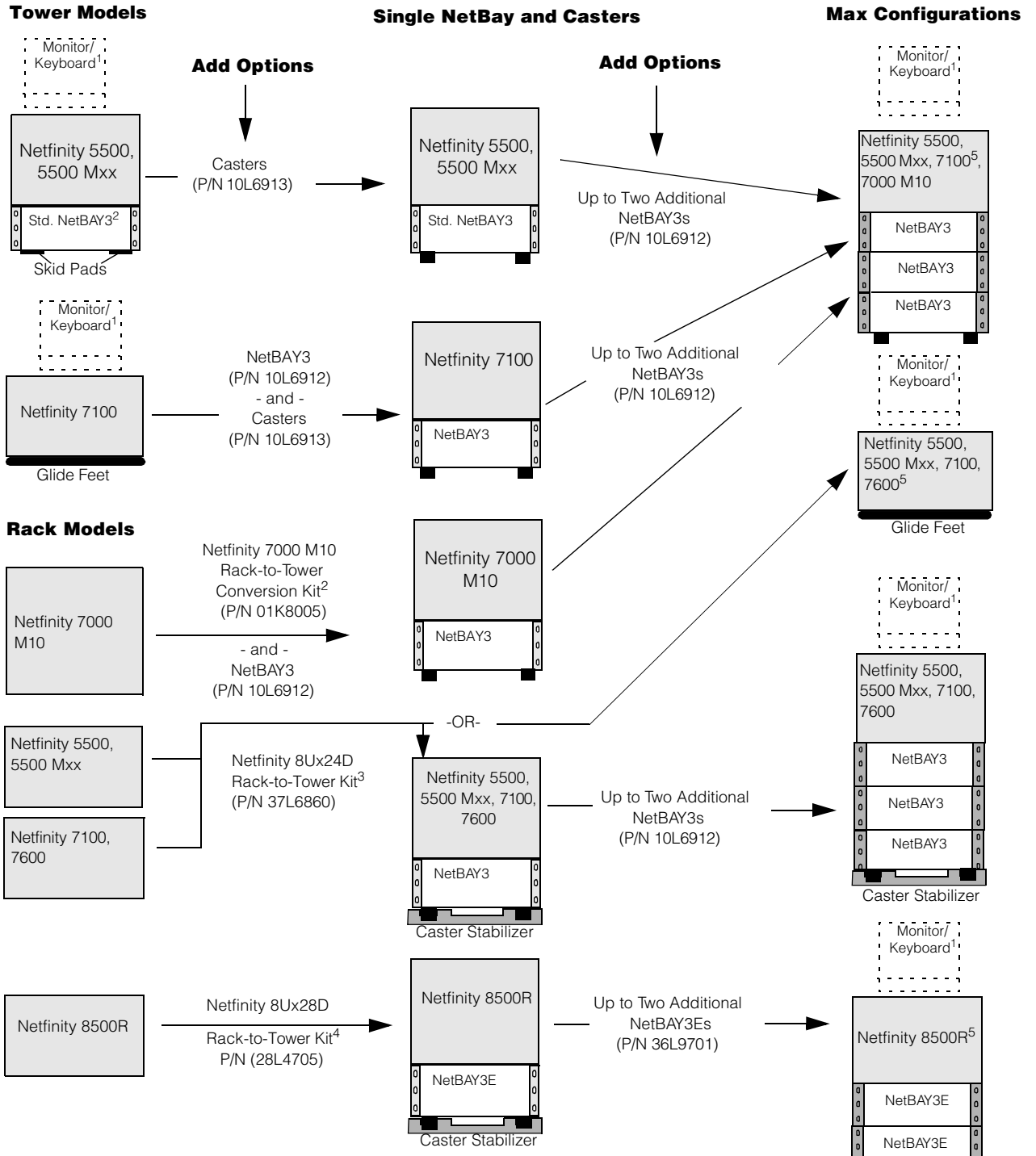
1) Locate power units with line cords in the bottom enclosure.
2) Install components starting from the bottom; start with the heaviest device.
3) If nothing is installed in the enclosure, attach the rear blank panel for stability.



Supported Devices	NetBAY3	NetBAY3E	Size (U)	Weight(lb/kg)	Max/Enclosure	Max/Stack
Servers						
Netfinity 7600[1]	X	-	-	120/54.4	n/a	1
Netfinity 7100	X	-	-	120/54.4	n/a	1
Netfinity 7000-M10[1]	X	-	-	160/72.6	n/a	1
Netfinity 5500	X	-	-	120/54.4	n/a	1
Netfinity 5500-Mxx	X	-	-	123.4/56.0	n/a	1
Netfinity 8500R[3]	-	X		170/77.1	n/a	1
Expansion[4]						
Netfinity EXP15	X	X	3	107/48.5	1	3
Tape Units[4]						
NetMEDIA 3551001	X	X	3	37/17	1	3
Power[4]						
APC Smart-UPS 1400RMB	X	X	3	55/24.9	1	1
APC Smart-UPS 3000RMB	X	X	3	112/50.8	1	1
100-120V PDU	X	X	1	5/2.3	1	1
200-240V PDU	X	X	1	8/3.6	1	1
Networking[4]						
2210 Multiprotocol Router	X	X	1, 2	7/3.2, 20/9.1	3, 1	9, 3
8230 T-R Controlled Access Unit	X	X	2	15/6.8	1	3
8235 Dial-in Access to LANs	X	X	1	8/3.6	3	9
8237 Ethernet Hub	X	X	2	10/4.5	1	3
8238 Nways T-R Hub	X	X	2	11/5.0	1	3
8271 Ethernet Switch	X	X	2	16/7.3	1	3
8272 T-R Switch	X	X	2	16/7.3	1	3
8285 ATM Switch	X	X	3	70/31.8	1	3

1. Netfinity 7600 systems are rack mountable and ship without a keyboard. In order to be utilized with a NetBAY3 or in a tower configuration, optional 8Ux28D Rack-to-Tower Kit (P/N 28L4705) must be installed.
2. Netfinity 7000-M10 systems are rack mountable and ship without a keyboard. In order to be utilized with a NetBAY3 or in a tower configuration, optional Rack-to-Tower Conversion Kit (P/N 01K8005) must be installed.
3. Netfinity 8500R systems are rack mountable and ship without a keyboard. In order to be utilized with a NetBAY3E or in a tower configuration, optional Rack-to-Tower Kit (P/N 28L4705) must be installed.
4. NetBAY3 and NetBAY3E do not contain a top cover and therefore require a supported server as the top component in a stack

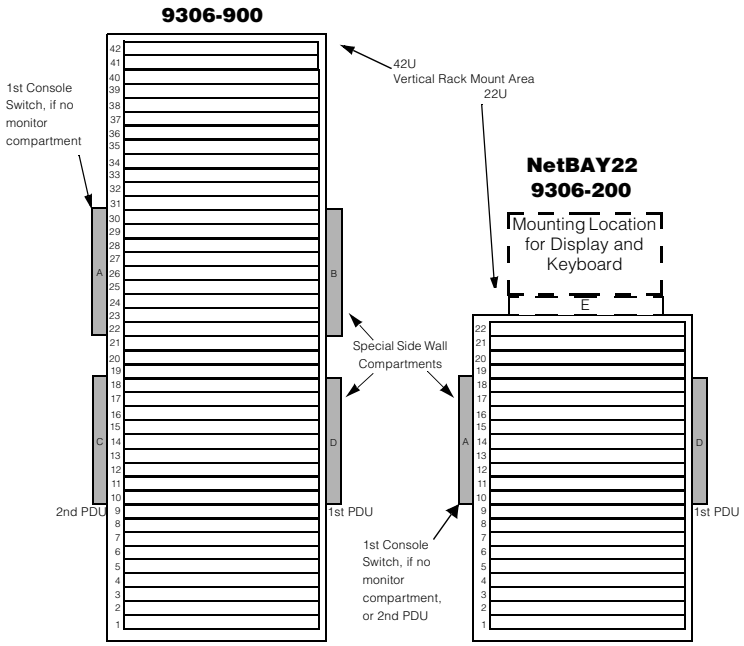
IBM Netfinity NetBAY3/3E Stackable Enclosure



1. Netfinity rack models ship without a keyboard or mouse. Those supported for stacking on a NetBAY3 or NetBAY3E must have a rack-to-tower kit installed.
2. Netfinity 7000 M10 Rack-to-Tower Conversion Kit (P/N 01K8005) includes casters which can also be used with a NetBAY3.
3. Netfinity 8Ux24D Rack-to-Tower Kit (P/N 37L6860) includes casters, caster stabilizer, glide feet and a single NetBAY3. Either NetBAY3 or the glide feet may be utilized but not both.
4. Netfinity 8Ux28D Rack-to-Tower Kit (P/N 28L4705) includes casters, caster stabilizer, and a single NetBAY3E.
5. Netfinity 7100, 7600 and 8500R are not supported for installation with three empty NetBAY enclosures without a caster stabilizer.

IBM Netfinity Rack Cabinet and Options

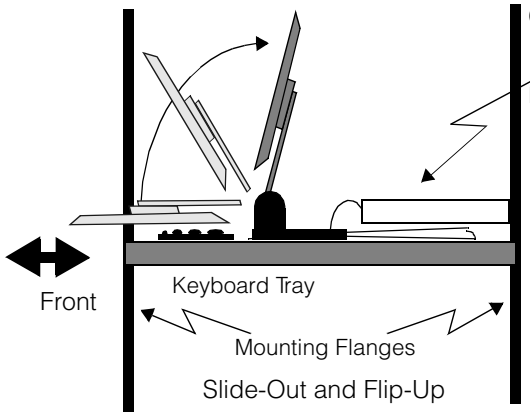
Note: For a robust rack configurator application access URL http://www.ibm.com/pc/us/products/server/download.html.



Direct Rack Mount[1]: Units Supported		
IBM Servers		
Netfinity 4000R	All Models	1U[5]
Netfinity 4500R	All Models	3U
Netfinity 5000	Rack Models	5U
Netfinity 5100	Rack Models	5U
Netfinity 5500, 5500 Mxx	Rack Models	8U
Netfinity 5600	Rack Models	5U
Netfinity 7000 M10	All Models	11U
Netfinity 7100	Rack Models	8U
Netfinity 7600	All Models	8U
Netfinity 8500R	All Models	8U[4]
IBM Storage Expansion Units		
Netfinity EXP15	3520-2Rx	3U
Netfinity EXP200	35301RU	3U
Netfinity EXP300	35311RU	3U
Netfinity EXP500	35601RU	3U
7133 Serial Disk System[2, 3]	7133-020	4U
IBM Fibre Solutions		
RAID Controller Unit	35261RU	4U
Fibre Channel Hub	35231RU	1U
IBM Tape Units		
NetMEDIA	3551001	3U
Magstar MP 3570	3570C21/C22	6U
IBM Networking Products		
Dial-in Access to LANS	8235-03x	1U

1. Mounting hardware provided with product
2. Requires Rail Kit (FC 3093). 208V Power cord included, optional 110V power cord (FC 9886/1.8M or FC 9800/2.8M) can be ordered. If the Black Cover Kit (FC 3020) is ordered, no white cover is shipped with system. Other specify codes may be required.
3. The 7133 Serial Disk System is not a IBM Personal Systems Group product. For additional configuration support, product information and ordering of these IBM Storage offerings, visit the IBM storage Website http://www.ibm.com/storage or contact your IBM representative.
4. Netfinity 8500R requires installation of extension kit 36L9703 or 36L9702 when installed in a 9306-900 or 9306-200 respectively for proper rear door closure clearance.
5. To provide adequate cooling, rack front door must be removed.

Keyboard/Pointer/Monitor & Switch ... all in 3U



Console Switch
- Mounts to rear flanges
- Shares 3U space with display, keyboard and tray

Keyboard Tray Components
- 28L4707 Netfinity Rack Keyboard Tray
- 37L6857 Netfinity Flat Panel Monitor Rack Mount Kit
- 28L3644 Space Saver Keyboard
- 9513AG1 T55A Flat Panel Color Monitor

Optional Accessories

Part Number	Mounting Support	Rack Space	Units Supported
94G7442	Fixed Shelf: width x depth= (439 mm x 663mm) 17.3 in. x 26.1 in max. weight= (45 kg)100lbs.	2 to xx U	IBM Networking Products 8222-008, 016 Nways Enet Wkgp Hub 2U 8225-003 Ethernet Hub 2U
85H6735	Network Products Mounting Kit	1 to 5 U	IBM Networking Products Ethernet Switch 8271-108, 216 2U Ethernet Hub 8237-00x 2U Token-Ring Switch 8272-108 2U Token-Ring Controlled Access Unit 8230-04A, 04P 2U Nways LAN Switch 8270-800 5U Nways Token-Ring Hub 8238-xx1 2U ATM Switch 8285-00B, 00E 3U Multi-Protocol Router 2210-12x 1U Multi-Protocol Router 2210-x4x 2U
36L9702	Netfinity NetBAY22 Rack Extension Kit installs on the rear of a 9306200[1].	-	Netfinity NetBAY22 9306200
36L9703	Netfinity Rack Extension Kit installs on the rear of a 9306900[1].	-	Netfinity Rack 9306900

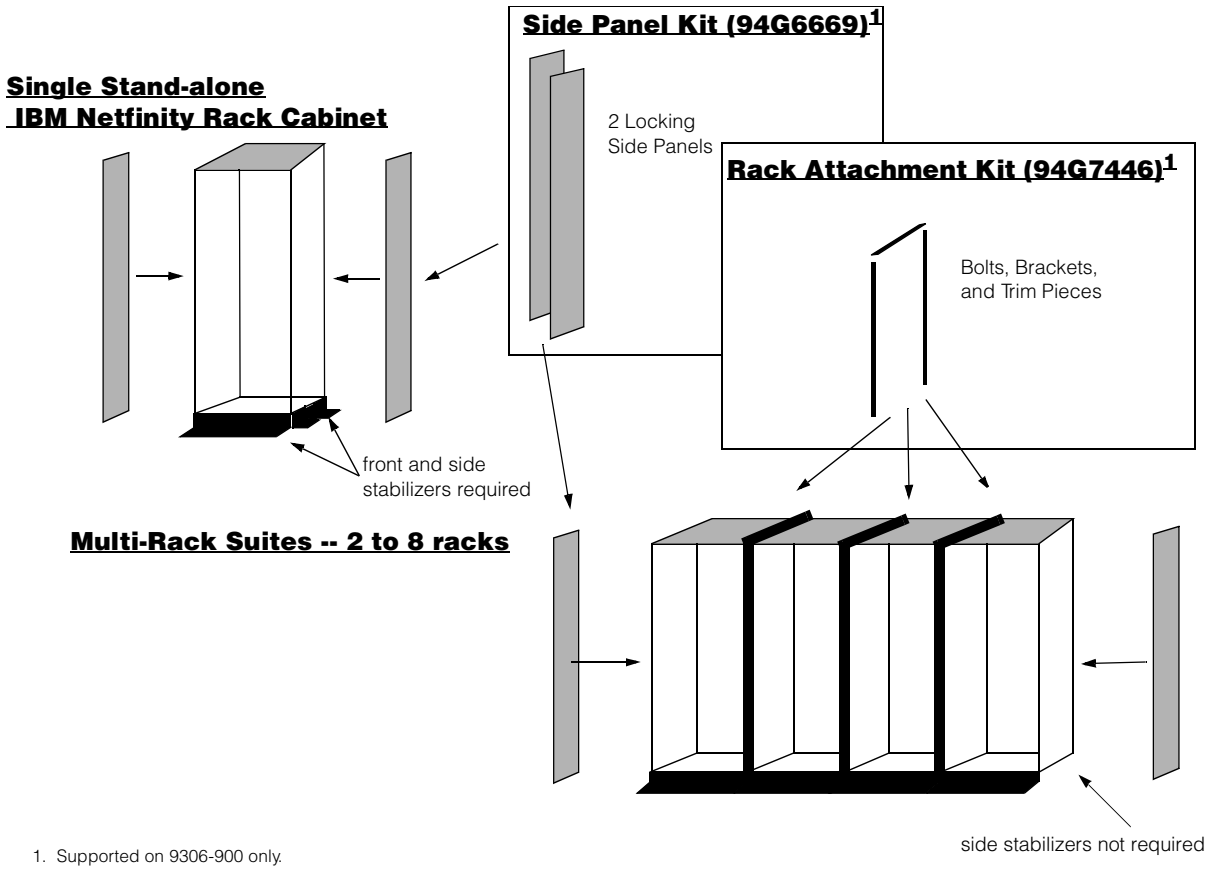
Part Number	Description	Console Support	Devices Supported		
			Devices	Height	Part Number
94G7444	Monitor compartment	One monitor and one console	**Monitors**		
			E54	9U	6331B2N
			G54	9U	65464AN
			E74	10U	6332J1N
			G74	10U	65474AN
			G76	10U	654841N
28L4707	Netfinity Rack Keyboard Tray	One flat panel display and one space saver keyboard, and one keyboard mouse	**Keyboards/Mouses[2]**		
			Space Saver II Keyboard[3, 4]	1U	28L3644
			TrackPoint IV 104-Key[3]	1U	01K1260
			Tower Model Keyboards[5]	1 to 2U	-
			Monitors		
			T55A flat panel monitor[6]	-	9513AG1
			Flat Panel Monitor Mount Kit[7]	3U	37L6857
37L6857	Flat Panel Monitor Rack Mount Kit	Supports installation of a flat panel monitor into tray 28L4707	**Monitors**		
			T55A Flat Panel Monitor	-	9513AG1
94G7445	Console Server Selector Switch (8-port, Tier up to 64)	Mounts behind monitor compartment or in rack side When used with keyboard tray 28L4707 and flat panel kit 37L6857 it can also be installed behind the keyboard tray.	Console Cable Set - 12ft. (366 m)	-	94G7447
28L0542	Netfinity Console Server Selector Switch (4-port)				
94G7447	Console Cable Set- (3.66 m) 12 ft.	Attaches server to console switch	Console Server Selector Switch (8-port)	-	94G7445
			Netfinity Console Server Selector Switch (4-port)	-	28L0542

1.Expands current racks for better cable management or to accomodate systems requiring greater installation depth.
2. Check system sections for support of desired keyboards, mouse and monitors.
3. Advanced TrackPoint IV features are not supported by Netfinity servers or rack console switches.
4. Space saver keyboards may be stowed in a ready-to-use position within tray 28L4707.
5. Tower models of Netfinity servers includes keyboards, which are supported by both keyboard trays and console switches. These are not space saver keyboards.
6. Installation in a Netfinity Rack Keyboard Tray (P/N 28L4707) requires Netfinity Flat Panel Monitor Rack Mount Kit (P/N 37L6857). A space saver keyboard may coexist within the same 28L4707 keyboard tray.
7. When installed in Netfinity Rack Keyboard Tray (P/N 28L4707) a flat panel monitor and space saver keyboard may coexist in the tray. Hardware is included for mounting a console selector switch to the rack directly to the rear of the tray thus sharing the same 3U space. See the Keyboard/Pointer/Monitor & Switch diagram above.

Part Number	Power Support	Rack Space	Comments
94G6666	100-120V 12a Power Distribution Unit	--	8 NEMA 5-15R outlets Mounts in rack side wall D,C
94G7450	200-240V 16a Power Distribution Unit	--	10 IEC 320-C13 outlets Mounts in rack side wall D,C
94G6674 94G6675	1400VA UPS 120V US/C/LA 220-240V EMEA/AP	3U	6 NEMA 5-15R outlets 4 IEC 320-C13 outlets
94G6676 94G6677	3000VA UPS 120V US/C/LA 120-240V EMEA/AP	3U	8 NEMA 5-15R outlets 8 IEC 320-C13 and 1 C19
	Power Cables Type Connectors		Length
94G6667	A14 IEC 320-C13 to NEMA 5-15P	-	(4.27 m) 14 ft.
94G7448	C12 IEC 320-C13 to IEC 320-C14	-	(3.66 m) 12 ft.
Part Number	**Miscellaneous**	**Rack Space**	**Comments**
94G6670	Blank Filler Panel Kit 1U panel (qty. = 2) 3U panel (qty. =1) 5U panel (qty. = 1)	1U + 1U 3U 5U	Use as required to fill empty space in the vertical rack mount area.

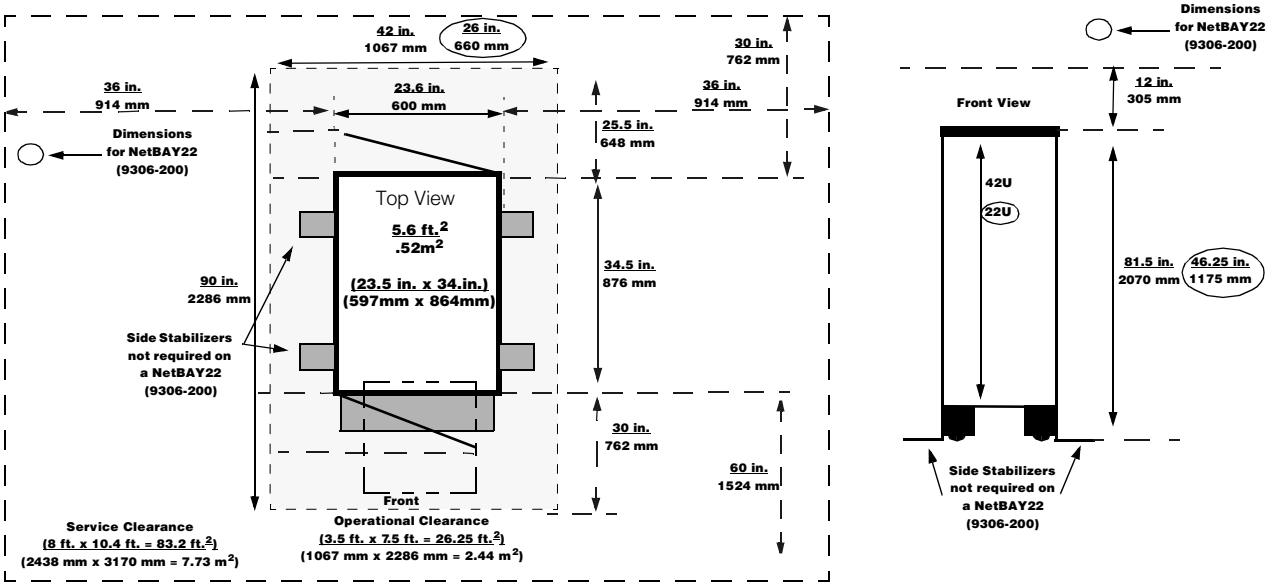
Note: You can select up to two power units per rack. Select the optional Power Cables when the standard cable is not long enough or has incompatible power plug.

9306-900 Single Cabinet or Multi-Rack Suite Options



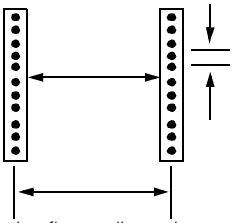
1. Supported on 9306-900 only.

Netfinity Rack - Cabinet and Options Dimensions
9306-900 and NetBAY22 (9306-200)

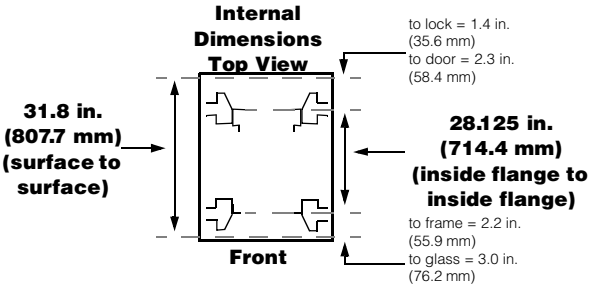


	9306-900		9306-200
Weight (lb/kg)	**Moveable**	**Stationary**	**Moveable or Stationary**
Empty rack	276/125	276/125	182/83
Max load	824/374	1424/646	746/338
Total	1100/499	1700/771	928/421

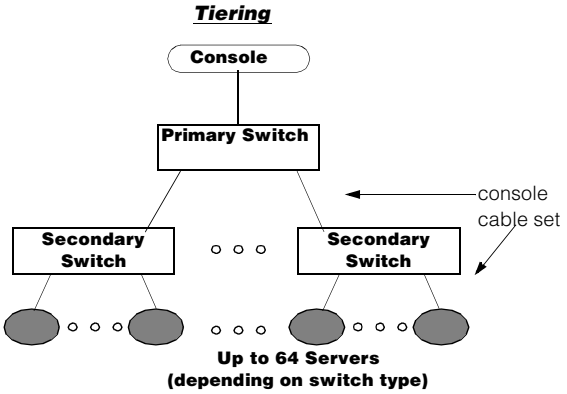
EIA 310-D standard 19-inch,
type A cabinet
1U = (44.45 mm)1.75 inches

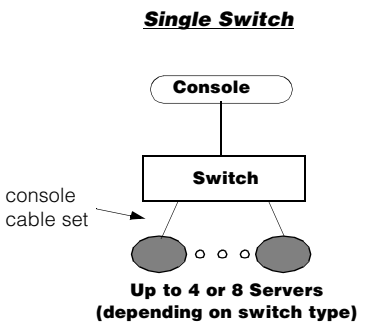


Mounting flange dimensions and
universal hole spacing defined
by EIA 310 for 19-inch racks



Switch Arrangements





Appendix A: Tape Drive Attributes

SCSI Interface

LEGEND
HH: Half High - approx. height of 1.6”
SL: Slim Line - approx. height of 1”

Part Number	Description	SCSI Interface (bit)	Form Factor	Bezel - (B)lack, (W)hite	Max GB-Native/Compr.[2]	MB/sec - Native/compr.[2]	Termination Incl.	68/50-pin Converter Incl.	Internal Cables	Data/Cleaning Cartridges Included	Ext. Tape Enclosures[1]
01K1282	12/24 GB DDS/3 4-mm Internal Tape Drive	8	89 mm (3.5”) HH or 133 mm (5.25”) HH	B/W	12/24	1.1/2.2	Y[3]	Y	-	1/1	3510020
00N7991	20/40 GB DDS/4 4-mm Internal Tape Drive	16 Ultra2 LVD	89 mm (3.5”) HH or 133 mm (5.25”) HH	B	20/40	2.75/5.5	Y[3]	-	-	1/1	3510020, 3551001
01K1319	10/20 GB NS Internal SCSI Tape Drive	8	89 mm (3.5”) SL or 133 mm (5.25”) HH	B/W	10/20	1/2	Y[3]	Y	-	1/0	3510020, 3551001
01K1325	20/40 GB 8-mm Internal SCSI Tape Drive	16	133 mm (5.25”) HH	B	20/40	3/6	N[4]	-	-	1/1	3510020[5], 3551001
01K1320	20/40 GB DLT Internal SCSI Tape Drive	8	133 mm (5.25”) FH	B	20/40	1.5/3	Y[6]	Y	-	1/0	3503B0X, 3551001
04K0149	35/70 GB DLT Internal SCSI Tape Drive	16	133 mm (5.25”) FH	B	35/70	5/10	N[4]	-	-	1/0	3503B0X[5], 3551001
00N7990	40/80 GB DLT Internal SCSI Tape Drive	16 Ultra2 LVD	133 mm (5.25”) FH	B	40/80	6/10	N[4]	-	-	1/0	3503B0X[5], 3551001
	Associated Options										
32G3918	SCSI-2 16-bit Active Terminator	16	Ext.	-	-	-	Y	N	-	-	3510020, 3503B0X
94G7587	PC Server SCSI Terminator Kit	8/16	Int.	-	-	-	Y	N	-	-	-
32G3925	SCSI 68-pin to 50-pin Converter	8/16	Int.	-	-	-	N	Y	-	-	3551001
36L9636	Netfinity Two-Drop Internal SCSI Cable[7]	16	Int.	-	-	-	Y	N	16-bit, 2 drop	-	-
	Tape Autoloaders										
3502108	DLT Tape Autoloader	16	Desktop	B	280/560	5/10	Y	-	-	1/1	-
00N7992	120/240 GB DDS/4 Tape Autoloader	16 Ultra2 LVD	133 mm (5.25”) FH	B	120/240	3/6	N	N	-	5/1	-
	External Tape Enclosures										
3510020	External Half High SCSI Storage Enclosure[8]	8/16	Desktop	B	-	-	N	N	8-bit or 16-bit	-	-
3551001	NetMEDIA Storage Expansion Unit EL[9]	16 LVD	Rack	B	-	-	Y	N	16-bit, 4 drop	-	-
10L7113	NetMEDIA Systems Management Adapter[10]	16	-	-	-	-	N	N	N	-	3551001
3503B0X	DLT External SCSI Enclosure[11]	16	Desktop	B	-	-	N	N	16-bit	-	-
	External Tape Libraries[12]										
3502x14	DLT Tape Library	16	Desktop or Rack	B	490/980	5/10	Y	-	-	1/1	-
3570xxx	Magstar MP 3570 Tape Subsystem (models B2x and C2x	Diff.	Rack	B	100/300	2.2/6.6 or 70/15.0	Y	-	-	1/1	-

1. To determine cable requirements, note the tape drive’s SCSI interface, the appropriate SCSI controller from the system configurator section and the desired enclosure then refer to Appendix D: Cables-Storage Units-Controllers.
2. Data compression typically provides a 2X improvement in capacity and transfer rate, but since data compression is affected by many factors, actual improvements may be more or less than 2X.
3. Tape drive is capable of self termination.
4. If installed as the last or only device on a SCSI cable, termination is required. Check system unit SCSI cabling to assure termination is included. Where internal termination is not included, PC Server SCSI Terminator Kit (P/N 94G7587) should be used.
5. Requires SCSI-2 16-bit Active Terminator (P/N 32G3918).
6. A 16-bit terminator is included for attachment to an internal cable.
7. Netfinity Two-Drop Internal SCSI Cable (P/N 36L9636) is a wide two-drop terminated cable and is required for attachment of internal tape drives to the onboard SCSI controller of a Netfinity 1000, 3000, 3500 M10, or 5000 when the hard disk drives are attached to a RAID Controller.
8. Provides a black desktop 5.25” half-high (HH) tape enclosure. Connector is configurable as 50-pin Centronix or 68-pin high density. Requires either tape drive self termination or SCSI-2 16-bit Active Termination (P/N 32G3918).
9. Provides a black 3U, 19” rack or NetBAY3 mountable tape enclosure. Provides two full high (FH) or four half-high (HH) extended length 5.25” bays. External connector is 0.8-mm VHDCI. Includes two power supplies and two power cords.
10. Installs in a 3551001. Provides repeater function and LVDS interface allowing longer cable lengths and auto-termination when the 3551001 is powered off.
11. Provides a black desktop DLT tape enclosure. External connector is 68-pin high density. Requires termination by the tape drive or by installation of a SCSI-2 16-bit Active Termination (P/N 32G3918).
12. Tape library attributes and prerequisites are located in Appendix B: Tape Library Attributes.

Note: SCSI support for tape drives is provided by system unit onboard (standard) controller (no-RAID function) or PCI Fast Wide Ultra SCSI Adapter P/N 02K3454.

Appendix B: Tape Library Attributes

SCSI Interface

LEGEND
F: Female - External
M: Male - External
68: 16-bit, 68 pin High Density Connector
Diff: Differential SCSI

Part Number	Description	SCSI Interface	Form Factor	Bezel - (B)lack	Terminator Included	External Cables Incl. (m)	SCSI Controllers Incl.	Data Cartridges std./max	Cleaning Cartridges std.	Cartridge Mags std./max	Qty. of drives - std./max	Max GB-Native/Compressed	MB/sec - Native/compr.[1]
3502314	DLT Tape Library - Tower	M68	Desktop	B	Y	M68-M68 3	Y	1/14	1	2/2	1/3	490/980	5/10
3502R14	DLT Tape Library - Rack[2]	M68	4U Rack	B	Y	M68-M68 3	Y	1/14	1	2/2	1/3	490/980	5/10
33L4979	DLT Library Drive Upgrade[3]	M68	-	-	N	Jumper	N	-	-	-	-	-	5/10
94G7442	Fixed Shelf	-	-	-	-	-	-	-	-	-	-	-	-
3570C21	Magstar MP 3570 Tape Subsystem[4]	Diff	6U Rack	B	Y	4.5	Y	1/20	1	2/2	1/2	100/300	7.0/15.0
3570C22	Magstar MP 3570 Tape Subsystem[4]	Diff	6U Rack	B	Y	4.5	Y	1/20	1	2/2	2/2[5]	100/300	7.0/15.0
08L6517	3570 Adapter Card Kit[6]	Diff	-	-	Y	4.5	Y	-	-	-	-	-	-
08L6480	Second "C" Drive for C21[7]	Diff	-	-	-	-	N	-	-	-	-	-	7.0/15.0
	Magstar MP Media[8]												
05H2462	Magstar MP Fast Access Linear Tape Cartridge, B-format[9]	-	-	-	-	-	-	-	-	-	-	-	-
05H2463	Magstar MP Cleaning Cartridge	-	-	-	-	-	-	-	-	-	-	-	-
08L6187	Magstar MP Fast Access Linear Tape Cartridge, C-format	-	-	-	-	-	-	-	-	-	-	-	-

1. Transfer rates are for single SCSI channel configurations. Tape libraries utilizing split library or dual host configurations may obtain higher rates. Data compression typically provides a 2X improvement in capacity and transfer rate, but since data compression is affected by many factors, actual improvements may be more or less than 2X.
2. Requires Fixed Shelf (P/N 94G7442) for installation in an IBM rack or NetBAY22.
3. Upgrade 33L4979 is an additional drive for 3502x14 DLT Tape Libraries. Up to two drive upgrades may be installed for a maximum of three drives per 3502x14.
4. Includes rack mounting hardware and two power cords (120 V and 250 V). Models B22 and C22 include an additional 2 power cords.
5. The two tape drives are daisy-chained on the same SCSI bus with an included 0.5 meter SCSI cable. Dual Host and Split Library configurations require 3570 Adapter Card Kit (P/N 08L6517).
6. Required for Dual Host or Split Library configurations with 3570B2x or 3570C2x containing two drives.
7. Required for either dual host or split library operation. Should be installed by qualified service personnel.
8. Magstar MP Media can be ordered by calling 888-IBM-MEDIA or 888-426-6334 in the US, Canada, or Puerto Rico.
9. B-format tape cartridges can be used in either Magstar MP 3570 Model B or C tape drives.

Appendix C: UPS Runtime Estimate (minutes)

Servers	# Pwr. Cords Std/Max	Watts Load Max./Typ.[1]
Netfinity 1000[2, 3]	1/1	225/160
Netfinity 3000[2]	1/1	225/160
Netfinity 3500 M10[2]	1/1	300/210
Netfinity 4000R	1/1	150/105
Netfinity 5000[2]	1/2	475/330
Netfinity 5500[2]	1/2	540/375
Netfinity 5500 M10[2]	1/2	540/375
Netfinity 5500 M20[2]	1/2	640/450
Netfinity 5600[2]	2/3	450/315
Netfinity 7000 M10[2]	1/2	745/525
Netfinity 7100[2]	2/4	475/330
Netfinity 7600[2]	3/4	475/330
Netfinity 8500R[2]	3/3	1450/1015
Other Devices		
Netfinity EXP15 (3520)[2]	2/2	400/280
Netfinity EXP200 Storage Expansion Unit (3530[2]	1/2	350/245
Netfinity FAStT EXP500 Storage Expansion Unit (3560)[2]	2/2	350/245
Netfinity Fibre Channel RAID Controller Unit (3526)[2]	2/2	160/105
Netfinity FAStT500 RAID Controller (3552)[2]	2/2	
DLT Tape Autoloader and Library (3502)	1/1	135/100
Magstar MP 3570 Tape Subsystem (B2x)	1/1	110/75
Magstar MP 3570 Tape Subsystem (C2x)	1/1	200/140
NetMEDIA Storage Expansion Unit EL (3551)	2/2	185/130

1. This table represents general guidelines for selecting the appropriate UPS based on minimum and typical runtime estimates. A 'maximum configuration' load will result in 'minimum' UPS runntime. 'Typical' loads are based on a production system running at approximately 70% of maximum capacity. The 'typical' loads represent a more likely configuration and, therefore, a more likely estimate of runtime. Customer environments are unique and are unlikely to be precisely represented by any of the specific entries in the table.
2. Power-Factor Corrected (PFC) power supply.
3. Netfinity 1000 (all models) are not available in Canada or Latin America. Netfinity 1000 (IDE models only) are available in the United States.
4. Data provided by APC.

		Tower				Rack Mounted		
	INT'L P/N	**SU-700iNET 94G4073**	**SU-1000iNET 94G4074**	**SU-1400iNET 94G4075**	**SU-2200iNET 94G4076**	**SU-1400RMiB 94G6675**	**SU-3000RMiB 94G6677**	**SU-5000RMiB 37L6862**
	US P/N	**SU-700NET 94G3134**	**SU-1000NET 94G3135**	**SU-1400NET 94G3136**	**Not Available**	**SU-1400RMB 94G6674**	**SU-3000RMB 94G6676**	**SU-5000RMB 37L6861**
UPS Attributes								
Communications Links to Servers		1	1	1	1	1	3	3
Color		black	black	black	white	black	black	black
EIA Height		-	-	-	-	3U	3U	5U
International Models								
50 or 60 Hz, single phase, VAC:		220-240 (208)[2]	220-240 (208)[2]	220-240 (208)[2]	220-240 (208)[2]	220-240 (208)[2]	220-240 (208)[2]	220-240 (xxx)[2, 3]
10 Amp, IEC 320-C13 (Device) receptacles		4	4	4	8	4	8	8
16 Amp, IEC 320-C19 (PDU 94G7450) receptacles		-	-	-	1	-	1	2
Line Cord Receptacle (IEC 320-)		C14	C14	C20	C20	C14	C20	TB[5]
US Models								
50 or 60 Hz, single phase, VAC:		120 (120)[2]	120 (120)[2]	120 (120)[2]	-	120 (120)[2]	120 (120)[2]	200-220 (208)[2]
Receptacles (NEMA 5-15R)		4	6	6	-	6	8	-
10 Amp, IEC 320-C13 (Device) receptacles		-	-	-	-	-	-	8
16 Amp, IEC 320-C19 (PDU 94G7450) receptacles		-	-	-	-	-	-	2[4]
Line Cord Length, NEMA Plug		6 ft., 5-15P	6 ft., 5-15P	6 ft., 5-15P	-	6 ft., L5-15P	6 ft., L5-30P	8 ft., L5-30P

1. Data provided by APC.
2. How-to-Read example for 220-240(208): Input VAC is 220- 240 as is the UPS output when electric service is active. When electriic service is interupted and the UPS is on battery the UPS output is 208 VAC.
3. Battery output may be set to 220, 225, 230, or 240 VAC.
4. Two PDU jumper cables ship with the UPS for attachment from the IEC 320-C19 receptacles to Power Distribution Units (PDU) (P/N 94G7450).
5. SU-5000RMiB (P/N 37L6862) contains a Terminal Block (TB) for direct attachment to an electrical source by qualified personnel.

	Total Configuration Runtime Estimator (Time in minutes)[1]						
	Tower				Rack Mount		
International Part Number	**SU-700iNET 94G4073**	**SU-1000iNET 94G4074**	**SU-1400iNET 94G4075**	**SU-2200iNET 94G4076**	**SU-1400RMiB 94G6675**	**SU-3000RMiB 94G6677**	**SU-5000RMiB 37L6862**
United States Part Number	**SU-700NET 94G3134**	**SU-1000NET 94G3135**	**SU-1400NET 94G3136**	**Not Available**	**SU-1400RMB 94G6674**	**SU-3000RMB 94G6676**	**SU-5000RMB 37L6861**
Total Load (Watts)	**Runtime Minutes**	**Runtime Minutes**	**Runtime Minutes**	**Runtime Minutes**	**Runtime Minutes**	**Runtime Minutes**	**Runtime Minutes**
200	22	38	62	130	45	104	240
250	17	28	43	104	34	84	200
300	12	22	34	85	25	70	166
350	9	18	29	71	22	58	145
400	7	14	23	65	18	52	125
450	5	12	20	52	15	45	110
500	-	11	18	43	13	38	97
550	-	9	16	38	11	35	87
600	-	8	13	34	10	31	76
650	-	7	12	31	9	29	68
700	-	6	11	28	8	26	63
750	-	-	10	25	8	24	59
800	-	-	9	23	7	22	55
850	-	-	8	21	7	20	51
900	-	-	7	19	6	18	47
950	-	-	6	18	5	17	43
1000	-	-	-	17	-	16	39
1100	-	-	-	15	-	14	34
1200	-	-	-	13	-	12	31
1300	-	-	-	11	-	10	28
1400	-	-	-	9	-	9	25
1500	-	-	-	9	-	8	22
1600	-	-	-	8	-	8	20
1700	-	-	-	-	-	7	18
1800	-	-	-	-	-	-	17
1900	-	-	-	-	-	-	14
2000	-	-	-	-	-	-	12
2100	-	-	-	-	-	-	11
2200	-	-	-	-	-		11
2300	-	-	-	-	-	-	10
2400	-	-	-	-	-		10
2500	-	-	-	-	-	-	9
2600	-	-	-	-	-		9
2700	-	-	-	-	-	-	8
2800	-	-	-	-	-	-	8

1. Data provided by APC.

Steps:
1. Identify the devices contained in the configuration.
2. Sum the load (watts) of all devices in the configuration. Use either Maximum Load for minimum runtime, or Typical Load for typical runtime.
3. Find the Total Configuration Load in the table above.
4. Select the most appropriate UPS model to achieve the desired runtime.
NOTE: If the Total Configuration Load is greater than the entries above, split the load across two or more UPS units.

Appendix D: Cables - Storage Units - Controllers

F: Female - External
M: Male - External
I: Internal
68: 16-bit, 68-pin High Density connector
50: 8-bit, 50-pin Centronix Connector
0.8: 16-bit, 68-pin Very High Density Connection Interface (VHDCI) 0.8 mm connector
16: 16-bit, 68-pin connector
8: 8-bit, 50-pin connector

Instructions: Identify Desired Controller Row and Storage Unit Column. The intersection of row and column contains the cable group letter which supports the connection. Go to the cable group under the corresponding storage unit for specific support. Read all Notes for row, column, and any cable group footnotes.

Description	Part Number	Max./ Channel (MB/sec)[1]	LVDS	Connector Type/ Max	Note #	35202RU	35301RU	35311RU	3510020	3503B0X	3551001	Adapter 10L7113
Storage Unit						35202RU	35301RU	35311RU	3510020	3503B0X	3551001	Adapter 10L7113
Max.MB/sec.[1]						40	80	160	-	-	-	-
LVDS						X	X	X	-	-	-	-
Connector Type						F0.8	F0.8	F0.8	F68 or F50	F68	F0.8	F0.8
RAID Storage Controllers						2, 3	2, 4	2, 5	6	6, 7	2, 6	2, 6, 8
Netfinity Fibre Channel RAID Controller Unit	35261RU	80	X	F0.8/6	9	A	A	-	-	-	-	-
Netfinity ServeRAID-3HB Ultra2 SCSI Adapter	37L6086	80	X	F0.8/3	-	A	A	A	-	-	-	-
Netfinity ServeRAID-3H Ultra2 SCSI Adapter	01K7207	80	X	F0.8/3	-	A	A	A	-	-	-	-
Netfinity ServeRAID-3L Ultra2 SCSI Adapter II	19K0564	80	X	F0.8/1	-	A	A	A	-	-	-	-
Netfinity ServeRAID-3L Ultra2 SCSI Adapter	01K7364	80	X	F0.8/1	-	A	A	A	-	-	-	-
Netfinity 4000R - RAID models - no external support	Adapter	80	X	F0.8/1	-	-	-	-	-	-	-	-
Netfinity 5500, 5500 M10 - ServeRAID II	Onboard	40	-	F0.8/1	10	A[11, 12]	A[11, 12]	-	B[13]	B[13]	A[13]	A[13]
Netfinity 5500 M20 - ServeRAID II	Onboard	40	-	F 0.8/1	-	A[11, 12]	A[11, 12]	-	B[13]	B[13]	A[13]	A[13]
Ultra160 SCSI Controllers												
Netfinity ServeRAID-4L Ultra160 SCSI Controller	37L6091	160	X	F0.8/1	14	A	A	A	-	-	-	-
Netfinity ServeRAID-4M Ultra160 SCSI Controller	37L6080	160	X	F0.8/2	14	A	A	A	-	-	-	-
Netfinity ServeRAID-4H Ultra160 SCSI Controller	37L6889	160	X	F0.8/4	14	A	A	A	-	-	-	-
Netfinity 4500R - no external port	Onboard	-	-	n/a	-	-	-	-	-	-	-	-
Netfinity 5100 - no external port	Onboard	-	-	n/a	-	-	-	-	-	-	-	-
Ultra2 SCSI Controllers												
PCI Wide Ultra2 SCSI Adapter	33L5000	80	X	F68/1	-	-	-	-	C	C	-	-
Netfinity 3000 - Models 80U and up	Adapter	80	X	F68/1	-	-	-	-	C	C	-	-
Netfinity 5600	Onboard	80	X	F0.8/1	-	-	-	-	B	B	A	A
Netfinity 7100	Onboard	80	X	F0.8/1	-	-	-	-	B	B	A	A
Netfinity 7600	Onboard	80	X	F0.8/1	15	-	-	-	B	B	A	A
Netfinity 8500R	Onboard	80	X	F0.8/1	-	-	-	-	B	B	A	A
Ultra SCSI Controllers												
PCI Fast/Wide Ultra SCSI Adapter	02K3454	40	-	F68/1	-	B[12]	B[12]	-	C	C	B	B
Netfinity 1000[16]	Adapter	40	-	F68/1	-	-	-	-	C	C	-	-
Netfinity 1000 (IDE) - no external port[17]	n/a	-	-	n/a	18	-	-	-	-	-	-	-
Netfinity 3000 - Models 71U and down	Adapter	40	-	F68/1	-	-	-	-	C	C	-	-
Netfinity 3500 M10	Onboard	40	-	F68/1	-	-	-	-	C	C	B	B
Netfinty 4000R - Non-RAID models	Adapter	40	-	F68/1	-	-	-	-	-	-	B	-
Netfinity 5000	Onboard	40	-	F68/1	-	-	-	-	C	C	B	B
Netfinity 7000 M10	Onboard	40	-	F68/1	-	-	-	-	B	B	A	A
Related Options												
0.8mm to 68-pin SCSI Adapter	01K8017	-	-	M0.8-F68	19	-	-	-	-	-	-	-
Netfinity SCSI Controller Cable	03K9313	-	-	I16-F0.8	10	A[11, 12]	A[11, 12]	-	B	B	A	A
Cable Group A (M0.8-M0.8)												
Netfinity 2M Ultra2 SCSI Cable	03K9310	-	X	M0.8-M0.8	20	X	X[21]	X[21]	-	-	X	X
Netfinity 4.2M Ultra2 SCSI Cable	03K9311	-	X	M0.8-M0.8	20	X	X	X	-	-	X	X
Netfinity 20 M Ultra2 SCSI Cable	37L7101	-	X	M0.8-M0.8	11	X[11]	X[11]	X	-	-	-	-
Cable Group B (M68-M0.8)												
1M External .8mm SCSI Cable	76H3589	-	-	M68-M0.8	-	X	X	X	X	X	X	X

F: Female - External
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0.8: 16-bit, 68-pin Very High Density Connection Interface (VHDCI) 0.8 mm connector
16: 16-bit, 68-pin connector
8: 8-bit, 50-pin connector

Instructions: Identify Desired Controller Row and Storage Unit Column. The intersection of row and column contains the cable group letter which supports the connection. Go to the cable group under the corresponding storage unit for specific support. Read all Notes for row, column, and any cable group footnotes.

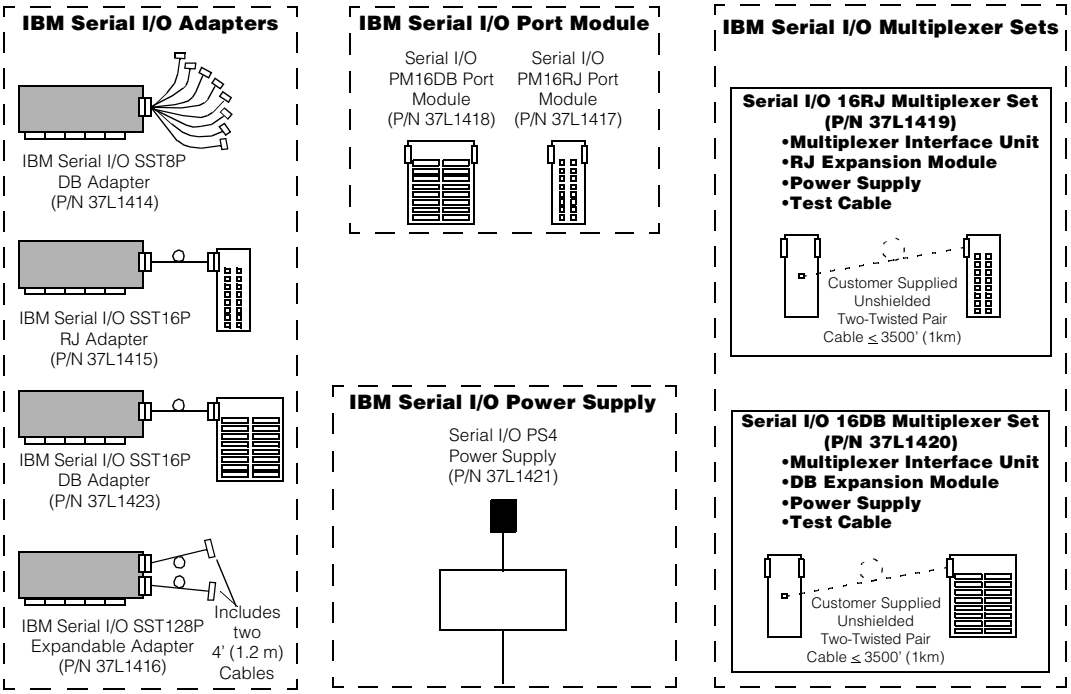
Storage Unit	35202RU	35301RU	35311RU	3510020	3503B0X	3551001	Adapter 10L7113
Max.MB/sec.[1]	40	80	160	-	-	-	-
LVDS	X	X	X	-	-	-	-
Connector Type	F0.8	F0.8	F0.8	F68 or F50	F68	F0.8	F0.8

Description	Part Number	Max./ Channel (MB/sec)[1]	LVDS	Connector Type/ Max	Note #	2, 3	2, 4	2, 5	6	6, 7	2, 6	2, 6, 8
2M External .8mm SCSI Cable	01K8027	-	-	M68-M0.8	-	X	X	X	X	X	X	X
4.3M External .8mm SCSI Cable	01K8029	-	-	M68-M0.8	12	X	X	X	-	-	X	X
Cable Group C (M68-M68)												
PC Server F/W to F/W External SCSI Cable-1m	70G9857	-	-	M68-M68	-	-	-	X	X	X	-	-
Cable Group D (Short Wave Fibre)[22]					-							
Netfinity Fibre Channel 1 M Cable	36L9973	-	n/a	S/W Fibre	-	-	-	-	-	-	-	-
Netfinity Fibre Channel 5 M Cable	03K9306	-	n/a	S/W Fibre	-	-	-	-	-	-	-	-
Netfinity Fibre Channel 25 M Cable	03K9305	-	n/a	S/W Fibre	-	-	-	-	-	-	-	-
Customer supplied cables ≤500M (0.31 miles)	**********	-	n/a	S/W Fibre	-	-	-	-	-	-	-	-
Cable Group E (Long Wave Fibre)[22]					-							
Customer supplied cables ≤ 10 KM (6.2 miles)	**********	-	n/a	L/W Fibre	-	-	-	-	-	-	-	-
Cable Group G (Other)												
SCSI-2 16-bit Active Terminator	32G3918	-	-	M68	-	-	-	-	X	X	-	-
GBIC[22]					-							
Netfinity Fibre Channel Short-Wave GBIC	03K9308	-	n/a	S/W Fibre	23	-	-	-	-	-	-	-
Netfinity Fibre Channel Long-Wave GBIC	03K9307	-	n/a	L/W Fibre	-	-	-	-	-	-	-	-

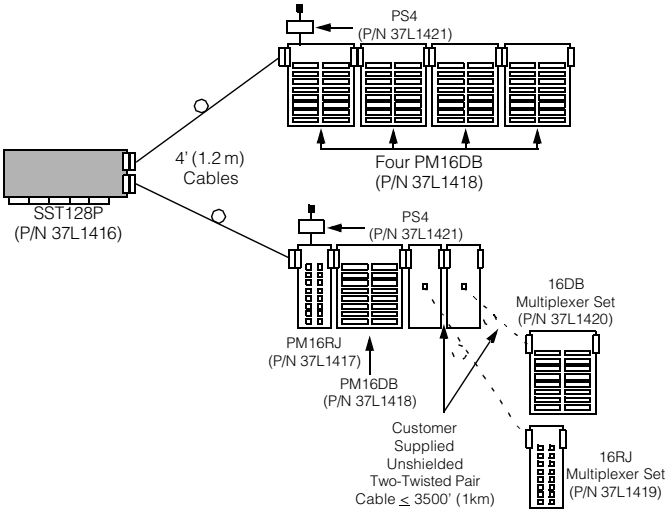
1. Maximum supported speeds may be limited by installation of lower speed devices, controllers or cable lengths greater than 2 meters.
2. Rack installation cable management requires devices to have a minimum cable length of 2 meters. Cable length requirements will vary based on placement within a single or multiple rack suite.
3. Attachment to wide ultra SCSI controllers limits operational speeds to Ultra SCSI (40 MBps) for cables up to 2 meters in length and Fast/Wide SCSI (20 MBps) for cable lengths between 2 meters and 4.3 meters. Ultra2 SCSI controllers and cables allow cable lengths of up to 20 meters at up to 40 MBps.
4. Attachment to wide ultra SCSI controllers limits operational speeds to Ultra SCSI (40 MBps) for cables up to two meters in length and Fast Wide (20 MBps) for cable lengths between 2 meters and 4.3 meters. Ultra2 SCSI controllers and cables allow cable lengths up to 20 meters at up to 80 MBps.
5. Maximum speeds may be limited by the installed devices or SCSI controller.
6. Daisy chaining tape enclosures is not supported. Speeds are limited by cable lengths and installed devices.
7. Requires SCSI-2 16-bit Active Terminator (P/N 32G3918).
8. Installs in a 3551001. Provides repeater function and LVDS interface allowing longer cable lengths and auto-termination when the 3551001 is powered off.
9. Connection to either Netfinity Fibre Channel Hub (P/N 35231RU) or Netfinity Fibre Channel PCI Adapter (P/N 01K7297) requires short wave fibre cables from Cable Group D.
10. Netfinity 5500 and 5500 M10 require IBM Netfinity SCSI Controller Cable (P/N 03K9313) to route the internal onboard SCSI RAID connector to an external F0.8 mm connector.
11. Cable lengths exceeding 4.3 meters are NOT supported for attachment to non-Ultra2 controllers.
12. Installations with cable lengths greater than 2 meters are limited to SCSI Fast/Wide speeds of 20 MBps .
13. RAID support for tape drives is limited to Non-RAID functions and utilization of a dedicated channel.
14. Maximum speeds may be limited by the enclosure or its installed devices.
15. Netfinity 7600 also includes a Netfinity ServeRAID-3HB Ultra2 SCSI Adapter (P/N 37L6086). See ServeRAID-3HB for connectivity requirements.
16. Netfinity 1000 SCSI models are not available in the Americas.
17. Netfinity 1000 (IDE models) are not available in Canada or Latin America.
18. Does not support external attachment of SCSI devices.
19. Converts a F0.8mm into a F68-pin connector for attachment of an external M68 cable.
20. Supports attachment to Ultra2 or single-ended SCSI controllers with operational speeds of up to Ultra2. Controller, storage unit, cable length or storage device limitations may apply (see Max. MB/sec row and column above).
21. Netfinity EXP200 (P/N 35301RU) and EXP300 (P/N 35311RU) include a single 2 meter Ultra2 SCSI cable similar to Netfinity 2 M Ultra2 SCSI Cable (P/N 03K9310).
22. See Fibre Array Solutions for device attachment.
23. Four short wave GBICs are included with Netfinity Fibre Channel Hub (P/N 35231RU).

For the latest product & technical information, refer to the Information Sources on pages 1 and 2.

Appendix E: IBM Serial I/O


IBM Serial I/O Adapters
IBM Serial I/O SST8P DB Adapter (P/N 37L1414)
IBM Serial I/O SST16P RJ Adapter (P/N 37L1415)
IBM Serial I/O SST16P DB Adapter (P/N 37L1423)
IBM Serial I/O SST128P Expandable Adapter (P/N 37L1416)
Includes two 4' (1.2 m) Cables
IBM Serial I/O Port Module
Serial I/O PM16DB Port Module (P/N 37L1418)
Serial I/O PM16RJ Port Module (P/N 37L1417)
IBM Serial I/O Power Supply
Serial I/O PS4 Power Supply (P/N 37L1421)
IBM Serial I/O Multiplexer Sets
Serial I/O 16RJ Multiplexer Set (P/N 37L1419)
•Multiplexer Interface Unit
•RJ Expansion Module
•Power Supply
•Test Cable
Customer Supplied Unshielded Two-Twisted Pair Cable ≤ 3500' (1km)
Serial I/O 16DB Multiplexer Set (P/N 37L1420)
•Multiplexer Interface Unit
•DB Expansion Module
•Power Supply
•Test Cable
Customer Supplied Unshielded Two-Twisted Pair Cable ≤ 3500' (1km)

Sample Configurations


PS4 (P/N 37L1421)
4' (1.2 m) Cables
Four PM16DB (P/N 37L1418)
SST128P (P/N 37L1416)
PS4 (P/N 37L1421)
16DB Multiplexer Set (P/N 37L1420)
PM16RJ (P/N 37L1417)
PM16DB (P/N 37L1418)
Customer Supplied Unshielded Two-Twisted Pair Cable ≤ 3500' (1km)
16RJ Multiplexer Set (P/N 37L1419)

37L1414	Serial I/O SST8P DB Adapter[1, 6]
37L1415	Serial I/O SST16P RJ Adapter[2, 6]
37L1423	Serial I/O SST16P DB Adapter[3, 6]
37L1416	Serial I/O SST128P Expandable Adapter[4, 6]
37L1417	Serial I/O PM16RJ Port Module[5]
37L1418	Serial I/O PM16DB Port Module[5]
37L1419	Serial I/O 16RJ Multiplexer Set[5, 7]
37L1420	Serial I/O 16DB Multiplexer Set[5, 7]
37L1421	Serial I/O PS4 Power Supply[5]

(1) Intelligent serial I/O interface card providing eight DB-25 RS232 serial connections using an octopus cable. Support for all ports at 921.6 Kbps simultaneously.
(2) Intelligent serial I/O interface card providing sixteen RJ-45 RS232 serial connections in a breakout box. Support for all ports at 115.2 Kbps simultaneously.
(3) Intelligent serial I/O interface card providing sixteen DB-25 RS232 serial connections in a breakout box. Support for all ports at 115.2 Kbps simultaneously.
(4) Intelligent interface card providing up to 128 RS232 serial connections (DB25 or RJ45) configured in 16 port increments utilizing any combination of Port Modules and Multiplexer Sets. Includes two 4' (1.2 m) bus cables. Each 4' cable supports attachment of 1 to 4 Port Modules and/or Multiplexer Interface Units for a total of 8 per adapter. The first Port Module or Multiplexer Set attached to a cable requires a Serial I/O PS4 Power Supply (P/N 37L1421). Support for all ports at 115.2 Kbps simultaneously.
(5) Port Modules and Multiplexer Sets attach directly to one the two standard 4' (1.2m) bus cables of the Serial I/O SST128P Expandable Adapter (P/N 37L1416) or directly to 1 or more Port Modules or Multiplexer Sets already attached to one of the cables. A maximum of 4 Port Modules or Multiplexer Sets may be attached to a single cable. The first Port Module or Multiplexer Set attached to a cable requires a Serial I/O PS4 Power Supply (P/N 37L1421).
(6) Serial I/O Adapters are 32-bit PCI half length cards. A maximum of four Serial I/O adapters (in any combination) may be installed in a single host system.
(7) Requires a customer supplied Unshielded Two-Twisted Pair (Catagory 3 minimum) cable with a maximum length of 3,500 feet (1 Km).

IBM ServicePac for Warranty and Maintenance Options for IBM Netfinity Servers and Server Storage Peripherals

With IBM ServicePac for Warranty and Maintenance Options, you can upgrade the service included with your hardware's original warranty. We offer a number of service options with coverage for parts and labor so that you can choose the package with the service response time that fits your needs. The service period for all options begins with the date of installation of the machine.

Machine Name	Machine Type*	Service Description*	IBM Part Number - Electronic	Estimated Retail Price	Base Warranty
IBM Servers					
Netfinity 3000	8476	3 YR 24x7 4-hour service	30L9185	$750	3 years parts & labor
Netfinity 3500	8644	3 YR 9x5 4-hour service	41L2736	$460	Next business day service response
Netfinity 3500 M10	8655				
Netfinity 5000/5000 Rack Mounted	8659	3 YR 24x7 2-hour service	31L2722	$2250	
Netfinity 5500/5500 Rack Mounted	8660	3 YR 24x7 4-hour service	30L9186	$1495	
Netfinity 5500 M10/5500 M10 Rack Mounted Netfinity 5500 M20/5500 M20 Rack Mounted	8661 8662	3 YR 9x5 4-hour service	41L2737	$900	
Netfinity 5600/5600 Rack Mounted	8664				
Netfinity 7000/7000 M10 Rack Mounted	8651 8680	3 YR 24x7 2-hour service 3 YR 24x7 4-hour service	31L2723 30L9187	$2995 $1995	
Netfinity 7100	8666	3 YR 9x5 4-hour service	41L2738	$1196	
Netfinity 7600	8665				
Netfinity 8500	8681	3 YR 24x7 2-hour service 3 YR 24x7 4-hour service 3 YR 9x5 4-hour service	41L2743 41L2742 41L2739	$3745 $2495 $1920	
IBM Server Storage Peripherals					
Rack/Storage Expansion Unit	3519	3 YR 24x7 2-hour service 3 YR 24x7 4-hour service	41L2745 41L2744	$540 $360	3 years parts & labor
DLT Tape Autoloader	3502 (108)	3 YR 24x7 4-hour service	41L2746	$1000	Next business day service response
DLT Tape Library	3502 (314/R14)	3 YR 24x7 4-hour service	41L2747	$1450	
EXP15 Storage Expansion Unit	3520 (2RU)	3 YR 24x7 2-hour service 3 YR 24x7 4-hour service	41L2749 41L2748	$600 $400	
EXP10/EXP200 Storage Expansion Unit	3520 (1RU) 3530	3 YR 24x7 2-hour service 3 YR 24x7 4-hour service	41L2751 41L2750	$600 $400	
Fibre Channel Hub	3523	3 YR 24x7 2-hour service 3 YR 24x7 4-hour service	41L2753 41L2752	$90 $60	
	3560	3YR 24x7 2-hour service 3 YR 24x7 4-hour service	41L2767 41L2766	$225 $150	
	3552	3 YR 24x7 2-hour service 3 YR 24x7 4-hour service	41L2769 41L2768	$1140 $760	

Machine Name	Machine Type*	Service Description*	IBM Part Number - Electronic	Estimated Retail Price	Base Warranty
IBM Server Storage Peripherals Continued					
Fibre Channel Controller	3526	3 YR 24x7 2-hour service 3 YR 24x7 4-hour service	41L2755 41L2754	$1935 $1290	
NetMEDIA Storage Expansion Unit	3551	3 YR 24x7 2-hour service 3 YR 24x7 4-hour service	41L2757 41L2756	$180 $120	
Rack/Storage Expansion Unit	9306 (200)	3 YR 24x7 2-hour service 3 YR 24x7 4-hour service	41L2759 41L2758	$255 $168	
	9306 (900)	3 YR 24x7 2-hour service 3 YR 24x7 4-hour service	41L2761 41L2760	$450 $300	
	9308 (42X/42P)	3 YR 24x7 2-hour service 3 YR 24x7 4-hour service	41L2763 41L2762	$450 $300	
SP Switch	3529	3 YR 24x7 2-hour service 3 YR 24x7 4-hour service	41L2765 41L2764	$299 $199	

Offering a variety of service levels to meet your needs

After we work with you and determine that service must be performed onsite by an IBM specialist, we will schedule the service call and set up a target arrival time based on the service level you purchased and activated. We offer national onsite coverage* and a number of service level options to fit your needs and budget. These include:

24x7 2-hour

A service technician is scheduled to arrive at your location within two hours after remote problem determination is completed. We provide service around the clock, every day, including IBM holidays.

24x7 4-hour

A service technician is scheduled to arrive at your location within four hours after remote problem determination is completed. We provide service around the clock, every day, including IBM holidays.

9x5 4-hour

A service technician is scheduled to arrive at your location within four business hours after remote problem determination is completed. We provide service from 8:00 a.m. To 5:00 p.m. In your local time zone, Monday through Friday, excluding IBM holidays. If after 1:00 p.m. It is determined that onsite service is required, you can expect the service technician to arrive the morning of the following business day. For non-critical service requests, a service technician will arrive by the end of the following business day.

For complete information on IBM ServicePac services, visit: www.ibm.com/services/pss/us/servicepac.html

* These services are available for machines used solely for business, professional, or trade purposes and not for machines used for personal, family or household purposes. Service is not provided in homes or home offices. Not all machine types and models are covered. Service period begins with the equipment date of purchase. Service must be purchased during the original limited product warranty period. Service levels are response time objectives and are not guarantees. A service technician is scheduled to arrive at your location within two or four business hours or the next business day (depending on service) after remote problem determination is completed. For the 9x5x4 hour service, calls dispatched after 1:00 p.m. local time, you can expect the service technician to arrive by the morning on the following business day. For non-critical service requests, a service technician will arrive by the end of the following business day. If the machine problem turns out to be an easily replaced Customer Replaceable Unit (CRU), IBM will express ship the part to you for quick replacement. Onsite 24x7x2 service for servers is not available in all locations. Service activation is required immediately following purchase. Visit www.as.ibm.com/asus/source/wamomxeu.pdf for complete details.

For warranty service upgrades for machines not listed above or maintenance service options on out-of-warranty machines call IBM at 1-888-426-4343 or your IBM Business Partner.

IBM ServicePac for SmoothStart Services for IBM Netfinity Servers

IBM ServicePac for SmoothStart Services are installation services designed to help accelerate the productive use of IBM solutions. Now you don't have to worry about pulling valuable in-house resources from essential daily activities. An IBM services specialist gives you customized service and helps by instructing your technical staff on the basics of each task.

SmoothStart Services for Netfinity Servers includes:

- Remote project coordination of onsite resources to implement your Netfinity solutions
- Installation and configuration of the rack mount or mini-tower Netfinity server
- Installation and configuration of the network operating system and Netfinity software tools
- Analysis and operational readiness verification of the Netfinity server hardware and software
- Basic skills session to familiarize your staff with the installation and configuration process
- Completion of the IBM product registration on your behalf.

SmoothStart Services - PC Cluster Servers includes:

- Remote project coordination of onsite resources to implement your Netfinity solution
- Installation and configuration of two Netfinity racks and two Netfinity servers
- Installation and configuration of the Microsoft cluster server software
- Analysis and operational readiness verification of the Netfinity cluster server hardware and software
- Basic skills session to familiarize your staff with the installation and configuration process
- Completion of the IBM product registration on your behalf

IBM ServicePac for SmoothStart Services for Netfinity Servers	31L1497
IBM ServicePac for SmoothStart Services - PC Cluster Servers	42L2770

For complete information on IBM ServicePac services, visit www.ibm.com/services/pss/us/servicepac.html

Important Notes

IBM reserves the right to change product specifications and to discontinue marketing products without notice.
*MHz only measures microprocessor internal clock speed, not application performance. Many factors affect application performance.
**When referring to hard drive capacity, GB stands for one billion bytes.Total user-accessible capacity may vary depending on operating environments.
***The quotation function within OrderBUILER allows reseller specific pricing to be included.
****Tape Drives which utilize data compression technology have storage capacity that will vary depending upon whether the drive is operating in native mode (without compression) or compressed mode. Actual storage capacity will vary based upon many factors and may be less than the maximum possible.
Maximum internal hard disk drive capacities assume the replacement of any hard disk drives and the population of all hard disk drive bays with the largest currently supported drives available from IBM.
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